Med
A

THE

AMERICAN JOURNAL

OF THE

MEDICAL SCIENCES.

EDITED BY

ISAAC HAYS, A.M., M.D.,

AND

I. MINIS HAYS, A.M., M.D.

NEW SERIES.

VOL. LXXIV.

143833
3/10/11

PHILADELPHIA:
HENRY C. LEA.
1877.

R
11
A5
n.s.
v.74
cop.2

Entered according to the Act of Congress, in the year 1877, by
HENRY C. LEA,
in the Office of the Librarian of Congress. All rights reserved.

PHILADELPHIA:
COLLINS, PRINTER,
705 Jayne Street.

TO READERS AND CORRESPONDENTS.

All communications intended for insertion in the Original Department of this Journal are only received for consideration with the distinct understanding that they are sent for publication to this Journal alone, and that abstracts of them shall only appear elsewhere subsequently, and with due credit. Gentlemen favouring us with their communications are considered to be bound in honour to a strict observance of this understanding.

Contributors who wish their articles to appear in the next number are requested to forward them before the 1st of August.

Compensation is allowed for original articles and reviews, except when illustrations or extra copies are desired. A *limited* number of extra copies (not exceeding *fifty*) will be furnished to authors, *provided the request for them be made at the time the communication is sent* to the Editors.

The following works have been received:—

De l'Échange des Gaz dans la Caisse du Tympan; considerations physiologiques et applications thérapeutiques par M. le Dr. Lœwenberg. Paris, 1877.

Delle Condizioni Igieniche del Cimitero Comunale di Calcinaia, relazione del Dott. A. Feroci. Pisa, 1876.

Transactions of the Obstetrical Society of London. Vol. XVIII., for the year 1876. London: Longmans, Green & Co., 1877.

Saint Bartholomew's Hospital Reports. Edited by James Andrew, M.D., and Alfred Willett, F.R.C.S. Vol. XII. London: Smith, Elder & Co., 1876.

The West Riding Lunatic Asylum Medical Reports. Edited by J. Crichton Browne, M.D., and Herbert C. Major, M.D. Vol. VI. London: Smith, Elder & Co., 1876.

The Forces of Nature: A Popular Introduction to the Study of Physical Phenomena. By Amédée Guillemin. Translated from the French by Mrs. Norman Lockyer, and edited, with Additions and Notes, by J. Norman Lockyer, F.R.S. London: Macmillan & Co., 1877.

Gout: Its Cause, Nature, and Treatment, with Directions for the Regulation of the Diet. By John Parkin, F.R.C.P.E., etc. Second Edition. London: Hardwicke & Bryne, 1877.

The "Oriental Sore," as observed in India. Leprosy in India. Reports by T. R. Lewis, M.B., Surgeon Brit. Med. Dept., and D. D. Cunningham, M.D., Surgeon Indian Med. Dept. Calcutta, 1877.

On some Undetermined Points in Typhoid Fever. By David Cullen, M.D., Surgeon-Major, A.M.D. London: Henry Kimpton, 1877.

British Medical Association Scientific Reports. First Contribution to the Life-History of Contagium. By Peter Murray Braidwood, M.D., F.R.M.S., and Francis Vacher. London, 1876.

The Diagnosis and Treatment of Auditory Nerve Vertigo. The Automatic Action of the Sphincter Ani. By W. R. Gowers, M.D., Assist. Phys. to Univ. Coll. Hosp. London, 1877.

Surgical Diagnosis: A Lecture by James George Reaney, F.R.C.S.E., Sen. Surgeon to the Melbourne Hospital. Melbourne: F. F. Baillière, 1877.

Phthisis in Victoria. By John Singleton, M.D.

A Course of Practical Histology: Being an Introduction to the Use of the Microscope. By Edward Albert Schäfer, Assist. Prof. of Physiology in University College, London. Philadelphia: Henry C. Lea, 1877.

Principles of Theoretical Chemistry, with Special Reference to the Constitution of Chemical Compounds. By Ira Remsen, M.D., Ph.D., Prof. of Chemistry in the Johns Hopkins University. Philadelphia: Henry C. Lea, 1877.

How to Use the Ophthalmoscope: Being Elementary Instructions in Ophthalmoscopy. Arranged for the Use of Students. By Edgar A. Browne, Surgeon to Liverpool Eye and Ear Infirmary, etc. Philadelphia: Henry C. Lea, 1877.

An Elementary Treatise on Practical Chemistry and Qualitative Inorganic Analysis. By Frank Clowes, D Sc., Lond. From the Second English Ed. Philadelphia: Henry C. Lea, 1877.

Illustrations of Clinical Surgery. By Jonathan Hutchinson, F.R C.S. Fasciculus VI. Philadelphia: Lindsay and Blakiston, 1877.

Atlas of Skin Diseases. By Louis A. Duhring, M D, Prof. of Skin Diseases in Hosp. of Univ of Penna. Part II Philadelphia: J. B. Lippincott & Co, 1877.

Transactions of the Pathological Society of Philadelphia. Volume sixth. Philadelphia: J. B. Lippincott & Co., 1877

Cyclopædia of the Practice of Medicine. Edited by Dr H. Von Ziemssen. Vol. XII. Diseases of Brain and its Membranes. New York: William Wood & Co., 1877.

General Index to the New York Medical Journal, from April, 1865, to June, 1876. By James B. Hunter, M.D. New York: D. Appleton & Co., 1877.

Report of the First Congress of the International Otological Society. New York, September, 1876. New York: D. Appleton & Co., 1877.

A Series of American Clinical Lectures. Edited by E. C. Seguin, M.D. No. 25. Transfusion of Blood and its Practical Application. By Thomas G. Morton, M.D. New York: G. P. Putnam's Sons, 1877.

Transactions of the American Gynæcological Society. Volume I., for the year 1876. Boston: H. O. Houghton & Co., 1877.

The Cure of Rupture, Reducible and Irreducible; also of Varicocele and Hydrocele, by New Methods By George Heaton, M.D., Member Mass Med. Society. Edited by J. Henry Davenport, M.D. Boston: H. O. Houghton & Co., 1877.

Myelitis of the Anterior Horns; or, Spinal Paralysis of the Adult and Child. By E. C. Seguin, M D., Clin. Prof. of Dis. of Mind and Nervous System in Coll. of Phys. and Surgeons, N. Y. New York: G. P. Putnam's Sons, 1877.

The Question of Rest for Women during Menstruation. By Mary Putnam Jacobi, M D, Prof. of Mat. Med. in Woman's Med. Coll., New York. The Boylston Prize Essay of Harvard Univ. for 1876. New York: G. P. Putnam's Sons, 1877.

Hand-Book for Hospital Visitors. New York: G. P. Putnam's Sons, 1877.

Medical and Surgical Reports of the Boston City Hospital. Second series. Boston: 1877.

Circular No. 9, War Dept., S. G. O., Washington, March, 1877. A Report to the Surgeon General on the Transport of Sick and Wounded by Pack-animals.

Therapeutic Use of Faradaic and Galvanic Currents in Electro-Thermal Bath. By Justin Hayes, M.D. Chicago: Jansen, McClurg & Co., 1877.

A Case of Exostosis of the External Auditory Meatus drilled out by the "Dental Engine." By Arthur Mathewson, M.D., Brooklyn, L I. New York, 1877.

On some Conditions, Physical and Rational, in Effusions of the Pleura. By Beverley Robinson, M.D. New York, 1877.

A Comparative Sketch of the Early Development of the Ear and Eye in the Pig, together with a new account of the Development of the Meatus Externus, Drum, and Eustachian Tube. By David Hunt, M.D., Boston. New York, 1877.

Report upon Yellow Fever as it appeared in Savannah, Georgia, in 1876. By Octavius A. White, M.D. New York, 1877.

Milk Sickness. By W. H. Philips, M.D., of Kenton, Hardin Co., Ohio.

The Relations of Medicine to Modern Unbelief. By Richard O. Cowling, M.D., Prof. of Surg. Path. in Univ. of Louisville. Louisville, 1876.

The Mortality of Surgical Operations in the Upper Lake States, compared with that of other Regions. By Edmund Andrews, A.M., M.D., Prof. of Surgery in Chicago Med. Coll.: assisted by Thomas B. Lacey, M.D., Assist. Surg. in Nat. Soldiers' Home. Chicago, 1877.

A Case of Diplacusis Binauralis, with Remarks. A Case of Restricted Range of Audition. By Swan M. Burnett, M.D., of Washington. New York, 1877.

A Study of the Natural History of Yellow Fever, and some Remarks upon the Treatment based upon the same; with Cases and Tables of Observations upon the Temperature and Urine. By Geo. M. Sternberg, M.D., Surgeon U. S. A.

Chloral in Obstetric Practice. By W. L Richardson, M.D., Boston, Mass.

The Relation of the Urinary Organs to Puerperal Diseases. By W. M. Chamberlain, M D New York, 1877.

Illuminating Oils in Michigan. By R. C. Kedzie, Member of State Board of Health.

Solution and Absorption of Medicine. By J. W. Compton, M D.

New Intra-Uterine Pessary. By V. H. Taliaferro, M.D., of Atlanta, Ga.

Restriction and Prevention of Scarlet Fever. Document issued by the State Board of Health of Michigan.

On the Treatment of Intussusception by Abdominal Section, with the Report of a Case in which the Operation proved Successful. By N. B. SANDS, M.D., Prof. of Anat. in Coll. of Phys. and Surgeons, N. Y. New York, 1877.

Poisonous Effects of Cyanide of Potassium. By JOSEPH JONES, M.D., Prof. of Chemistry, Univ. of La.

A Synopsis of Private Obstetrical Practice for forty-two years previous to Jan. 1876. By WILLIAM INGALLS, M.D. Cambridge, 1877.

Review of Dr Squibb's Proposed Plan for the Future Revision of the U. S. Pharmacopœia: Being a Special Report upon this Subject by the Committee of National Coll. of Pharmacy on the U. S. Pharmacopœia. Washington, 1877.

The Errors of Refraction demonstrated by a New and Original Model. By FRANKLIN A. MUNSON, M D., of Albany. Albany, 1877.

Rare Forms of Umbilical Hernia in the Fœtus. Labour complicated with Uterine Fibroids and Placenta Prævia. By JAMES R. CHADWICK, M.D., of Boston.

Viburnum Prunifolium (Black Haw): Its Uses in the Treatment of the Diseases of Women. By EDWARD W. JENKS, M.D., of Detroit.

Psychological Pathology of Progressive Paresis. By EDWARD C. SPITZKA, M.D.

Occlusion and Dilatation of Lymph Channels. By SAMUEL C. BUSEY, M.D., of Washington, D. C.

The Respiratory Brace: A New Appliance devised for the Relief of Orthopnœa. By GEORGE F. FRENCH, M.D., of Portland, Me.

Phthisis: Its Causes, Diagnosis, and Treatment. By WM. PORTER, M.D. St. Louis, 1877.

Syphilis and Chancroid. By P. H. BAILHACHE, Surgeon U. S. M.-H. Service.

A Preliminary Analysis of 1060 Cases of Asthenopia occurring in the Practice of C. R. AGNEW, M.D., of New York.

Early Pregnancy simulating Acute Uterine and Circumuterine Inflammation. By GEO. J. ENGELMANN, M.D. St. Louis, 1877.

The Extension Windlass. By CHARLES DENISON, M.D., of Denver, Col.

A Report on the Percentage of Near-sight found to exist in the Class of 1880 at Harvard College, with some Account of Similar Investigations. By HASKET DERBY, M.D. Cambridge, 1877.

Two Cases of Morphœa, with Remarks on the Disease and its Differential Diagnosis. On the Nomenclature and Classification of Diseases of the Skin. By L. DUNCAN BULKLEY, M.D. New York, 1877.

Transactions of the Nebraska State Medical Society, 1874–5–6. Lincoln, 1877.

Transactions of the Vermont Medical Society for 1874–5–6. St. Albans, 1877.

Transactions of Illinois State Medical Society, May, 1876. Chicago, 1876.

Transactions of State Medical Society of Arkansas. Little Rock, 1877.

Proceedings of Medical Society of County of Kings, N. Y. April, May, June.

Transactions of the Medical Society of the District of Columbia, April, 1877.

Proceedings of the Philadelphia County Medical Society in reference to the proposed Plan for Management of U. S. Pharmacopœia as presented by Dr. Squibb to American Medical Association for their action in 1877. Philadelphia, 1877.

Proceedings of Georgia Pharmaceutical Association, Atlanta, 1877. Atlanta, 1877.

Address of the President, JOSEPH W. THOMPSON, M.D., of Paducah, Ky., before the Tri-States Medical Society. Paducah, 1877.

Address by Dr. WM. S. ELY, as retiring President of the Medical Association of Central N. Y. 1876.

Report upon the Census of Rhode Island, 1875; with the Statistics of the Population, Agriculture, Fisheries and Shore Farms, and Manufactures of the State. By EDWIN M. SNOW, M.D., Sup't of the Census. Providence, 1877.

Report of the New York Eye and Ear Infirmary, 1876.

Report of the New York Orthopædic Dispensary and Hospital. New York, 1877.

Report of New York Hospital and Bloomingdale Asylum, 1876. New York, 1877.

Report of the State Board of Pharmacy, 1877. Providence, 1877.

Report of the Board of Health of the City of New Haven, 1876. New Haven, 1877.

Report of the Board of Health of the City of Dayton, 1877.

Report of the City Registrar, comprising Return of Deaths. By ROBERT LEBBY, M.D. Charleston, S. C., 1877.

Report of the Asylum for the Relief of Persons deprived of the Use of their Reason. Philadelphia, 1877.

Report of the Retreat for the Insane at Hartford, Conn. 1877.

The following Journals have been received in exchange:—

Deutsches Archiv für Klinische Medicin. Bd. XIX., Heft 2, 3, 4, 5, 6.
Archiv der Heilkunde. Bd. XVIII., Heft 3, 4.
Archiv für Anatomie, Physiologie, und Wissenschaftliche Medicin, 1876. No. 6.
Centralblatt für die Medicinische Wissenschaften. Nos. 9 to 23, 1876.
Allgemeine Wiener Medizinische Zeitung. Nos. 10 to 23, 1877.
Deutsche Medicinische Wochenschrift. Nos. 9 to 23, 1877.
Upsala Läkareförenings Förhandlingar. Bd. XII., Nos. 3, 4, 5.
Bibliothek for Laeger. Bd. VII., Heft 2.
Nordiskt Medicinskt Archiv. Bd. VIII., Fjärde Häft., Bd. IX., Första Häft.
Annali Universali di Medicina e Chirurgia. Febbraio, Marzo, Aprile, Maggio, 1877.
Giornale Italiano delle Malattie Veneree e della Pelle. April, 1877.
Commentario Clinico di Pisa. Febbraio, Marzo, Aprile, Maggio, 1877.
L'Imparziale. Nos. 5, 6, 7, 8, 9, 10, 1877.
Lo Sperimentale. Fascic. 3, 4, 5, 6, 1877.
O Correio Medico de Lisboa. Nos. 7, 8, 9, 1877.
Cronica Medico-Quirurgica de la Habana. Enero, Fevrero, Marzo, Abril, Mayo, 1877.
Archives Générales de Médecine. Avril, Mai, Juin, 1877.
Annales de Dermatologie et de Syphiligraphie. Tome VIII., No 3.
Annales des Maladies de l'Oreille et du Larynx. Mars, Mai, 1877.
Revue des Sciences Médicales en France et de l'Etranger. Avril, 1877.
Revue Mensuelle de Médecine et de Chirurgie. Avril, Mai, Juin, 1877.
Gazette Hebdomadaire de Médecine et de Chirurgie. Nos. 10 to 23, 1877.
L'Union Médicale. Nos. 27 to 67, 1877.
Le Progrés Médical. Nos. 10 to 23, 1877.
Le Mouvement Médical. Nos. 10 to 23, 1877.
L'Année Médicale. Nos. 4, 5, 6, 1877.
Revue Scientifique de la France et de l'Etranger. Nos. 37 to 50, 1877.
Union Médicale et Scientifique du Nord-Est. Mars, Avril, Mai, 1877.
The British and Foreign Medico-Chirurgical Review. April, 1877.
The Lancet. April, May, June, 1877.
The Medical Times and Gazette. April, May, June, 1877.
The British Medical Journal. April, May, June, 1877.
The Medical Examiner. April, May, June, 1877.
The London Medical Record. April, May, June, 1877.
The Sanitary Record. April, May, June, 1877.
The Practitioner. April, May, June, 1877.
The Obstetrical Journal of Great Britain and Ireland. April, May, June, 1877.
The Journal of Psychological Medicine and Mental Pathology. Vol. III., Pt. 1.
The Journal of Anatomy and Physiology. April, 1877.
Edinburgh Medical Journal. March, April, May, June, 1877.
The Glasgow Medical Journal. January, April, 1877.
The Dublin Journal of Medical Science. March, April, May, 1877.
The Doctor. April, May, 1877.
The Indian Medical Gazette. March, April, May, 1877.
The Australian Medical Journal. October, November, December, 1876.
Canada Medical and Surgical Journal. April, May, June, 1877.
The Canada Medical Record. March, April, 1877.
The Canada Journal of Medical Science. April, 1877.
The Canada Lancet. April, May, June, 1877.
L'Union Médicale du Canada. Avril, 1877.

The usual American exchanges have been received; their individual acknowledgment we are compelled to omit for want of space.

Communications intended for publication, and books for review, should be sent *free of expense*, directed to Isaac Hays, M.D., Editor of the American Journal of the Medical Sciences, care of Mr. Henry C. Lea, Philadelphia. Parcels directed as above, and (carriage paid) under cover, to Mr. Charles J. Skeet, Bookseller, No. 10 King William Street, Charing Cross, *London*, will reach us safely and without delay.

All remittances of money and letters on the *business* of the *Journal* should be addressed *exclusively* to the publisher, Mr. H. C. Lea, No. 706 Sansom Street.

The advertisement sheet belongs to the business department of the *Journal*, and all communications for it must be made to the publisher.

CONTENTS

OF

THE AMERICAN JOURNAL

OF

THE MEDICAL SCIENCES.

NO. CXLVII. NEW SERIES.

JULY, 1877.

ORIGINAL COMMUNICATIONS.

MEMOIRS AND CASES.

ART.	PAGE
I. On the Causes of the Epidemic of Yellow Fever at Savannah, Georgia, in 1876. By Alfred A. Woodhull, M.D., Surgeon U. S. Army.	17
II. The Antipyretic Treatment of Pneumonia. By Samuel E. James, M.D., of Frankfort, Ky.	54
III. A Contribution to the Study of Inherited Syphilis of the Eye. By Charles S. Bull, M.D., Surgeon to the New York Eye Infirmary and to Charity Hospital.	66
IV. Some Cases of Syphilitic Chorea. By Robert H. Alison, M.D., Assistant Physician to the Infirmary for Nervous Diseases, Philadelphia.	75
V. Two Cases of Catarrhal Inflammation of the Bladder, resulting in the plugging of one Ureter and the formation of cheesy masses in the Kidney; Death from Acute Tuberculosis. By Morris Longstreth, M.D., Pathologist to the Pennsylvania Hospital; Lecturer on Pathological Anatomy at the Jefferson Medical College.	81
VI. Syphilis of the Lung. By L. McLane Tiffany, B.A. (Cantab.), M.D., Professor of Operative Surgery in the University of Maryland.	90
VII. Report of Three Cases of Tracheotomy. By Geo. W. Rachel, M.D., of New York. (Read before the New York Medico-Chirurgical Society of German Physicians, December 18, 1876.)	95
VIII. Case of Stricture of Rectum and Urethra; Perineal Fistulæ; Recto-urethral Fistula; Fistula in Ano; Probable Spontaneous Rupture of Membranous Urethra; Successful Treatment. Reported, with remarks, for H. E. Jones, M.D., of Portland, Oregon; by F. B. Eaton, M.D., Acting Asst. Surgeon, U. S. A.	102
IX. A Case of Purulent Pelvic Effusion that opened spontaneously into the Vagina. By Walter F. Atlee, M.D., of Philadelphia.	107
X. A Case bearing upon the Argument from Pathology as to the Function of the Cerebellum. By James Tyson, M.D., Prof. of General Pathology and Morbid Anatomy at the University of Pennsylvania; one of the Physicians to the Philadelphia Hospital, etc.	110

ART. PAGE

XI. Cases in Practice. By Geo. R. C. Todd, M.D., of Barnwell Court House, South Carolina. 112

XII Account of a Worm (Dracunculus, or Filaria loa) removed by a native woman from beneath the Conjunctiva of the Eyeball of a Negress at Gaboon, West Africa, with a Brief History of the Parasite, and Prof. Leidy's Description of the Specimen. By Thomas G. Morton, M.D., Surgeon to the Pennsylvania Hospital. 113

XIII. Supra-pubic Lithotomy. By C. W. Dulles, M.D.; with report of a successful case, by E. F. Starr, M.D., of Nacoochee, Ga. 116

XIV. An Adaptation of the Plaster Jacket to the Splints for the Hip. By James Nevins Hyde, M.D., Professor of Dermatology and Orthopedic Surgery, Chicago Medical College. 121

XV. A Bulbous-Headed Dilating Urethrotome. By R. A. Kinloch, M.D., Professor of Surgery in the Medical College of the State of South Carolina, Charleston, S. C. 125

XVI. On the "First Insensibility" from the Inhalation of Sulphuric Ether. By John H. Packard, M.D., one of the Surgeons to the Episcopal Hospital, Philadelphia. 130

XVII. Observations with a view to Determining the Influence of Jaborandi on the Elimination of Urea by the Kidneys. By James Tyson, M.D., Professor of General Pathology and Morbid Anatomy in the University of Pennsylvania, one of the Physicians to the Philadelphia Hospital, etc., and Ed. T. Bruen, M.D., one of the Physicians to the Philadelphia Hospital. 132

XVIII. The Hæmarumascope. By Octavius A. White, M.D., of New York. 133

REVIEWS.

XIX. Traité des Tumeurs Bénignes du Sein. Par Leon Labbé, Chirurgien de l'Hôpital de la Pitié, Professeur agregé, etc. etc., et Paul Coyne, ancien interne et lauréat des Hôpitaux, adjoint au laboratoire d'histologie de la Charité, etc.

A Treatise on Innocent Tumours of the Breast. With two colored plates and thirty-two wood-cuts. 8vo. pp. 560. Paris, 1876. 137

XX. A Text-Book of Physiology. By M. Foster, M.A., M.D., F.R.S., Prælector of Physiology and Fellow of Trinity College, Cambridge. 8vo. pp. 559. London: Macmillan & Co., 1877. 143

XXI. Clinical Lectures on Diseases of the Heart and Aorta. By Geo. William Balfour, M.D., St. And., F.R.C.P. Ed., Physician to, and Lecturer on Medicine in, the Royal Infirmary, Edinburgh. 8vo. pp. xvi., 428. London: J. & A. Churchill, 1876. 153

XXII. The Practitioner's Handbook of Treatment; or, The Principles of Therapeutics. By J. Milner Fothergill, M.D., Member of the Royal College of Physicians of London; Assistant Physician to the City of London Hospital for Diseases of the Chest, Victoria Park; Assistant Physician to West London Hospital. 8vo. pp. 575. Philadelphia: Henry C. Lea, 1877. 163

ANALYTICAL AND BIBLIOGRAPHICAL NOTICES.

XXIII. Saint Bartholomew's Hospital Reports. Edited by James Andrew, M.D., and Alfred Willett, F.R.C.S. Vol. XII. 8vo. pp. xxiv., 350. London: Smith, Elder & Co., 1876. 171

XXIV. Transactions of the Obstetrical Society of London. Vol. XVIII. For the year 1876. 8vo. pp. lxii., 355, 20. London: Longmans, Green & Co., 1877. 178

XXV. The West Riding Lunatic Asylum Medical Reports. Edited by J. Crichton Browne, M.D., F.R.S.E., and Herbert C. Major, M.D. Vol. VI. 8vo. pp. 309. London: Smith, Elder & Co., 1876. 184

ART. PAGE

XXVI. Report of the Fifth International Ophthalmological Congress. Held in New York, September, 1876. 8vo. pp. 255. New York: D. Appleton & Co., 1877. 188

XXVII. Report of the First Congress of the International Otological Society. New York. September, 1876. 8vo. pp. iv., 159. . . . 191

XXVIII. Transactions of the American Gynæcological Society. Vol. I. For the year 1876. 8vo. pp. ix., 387. Boston: H. O. Houghton & Co., 1877. 194

XXIX. Nutrition in Health and Disease: A Contribution to Hygiene and to Clinical Medicine. By James Henry Bennet. M.D.. Member of the Royal College of Physicians, London; Doctor of Medicine of the University of Paris, etc. etc. 8vo. pp. 248. Second edition; Lindsay & Blakiston. 1876. 201

XXX. Civil Malpractice. A Treatise on Surgical Jurisprudence. With Chapters on Skill in Diagnosis and Treatment. Prognosis in Fractures, and on Negligence. By Milo A. McClelland. M.D. 8vo. pp. xx., 554. New York: Hurd & Houghton, 1877. 203

XXXI. Cyclopædia of the Practice of Medicine. Edited by Dr. H. von Ziemssen. Albert H. Buck, M.D., New York, Editor of American Edition.

Vol. VII. Diseases of the Chylopoetic System, together with the Chapters on Diseases of the Naso-Pharyngeal Cavity and Pharynx. Laryngitis Phlegmonosa, Perichondritis Laryngea, Ulcerations and Tumours, and Neuroses of the Larynx. By Prof. Hermann Wendt, of Leipzig; Prof. W. Leube. of Jena; Dr. O. Leichtenstern, of Tübingen: Prof. Arnold Heller, of Kiel; Prof. H. von Ziemssen, of Munich; and Dr. A. Steffen, of Stettin. 8vo. pp. xiv.. 1046. New York: William Wood & Co., 1876.

Vol. XII. Diseases of the Brain and its Membranes. pp. xii., 902. New York: William Wood & Co., 1877. 206

XXXII. Clinical and Physiological Researches on the Nervous System. No. 1. On the Localization of Movements in the Brain. By J. Hughlings Jackson. M.D.. F.R.C.P., etc. 8vo. pp. xlviii., 37. London: J. & A. Churchill. 1875. 210

XXXIII. A Course of Practical Histology: being an Introduction to the Use of the Microscope. By Edward Albert Schäfer. Assistant Professor of Physiology in University College, London. 12mo. pp. 304. Philadelphia: Henry C. Lea, 1877. 211

XXXIV. Illustrations of Clinical Surgery. By Jonathan Hutchinson, F.R.C.S. Fasiculus VI. Plates XXII. to XXV. Folio, pp. 114–133. Philadelphia: Lindsay & Blakiston. 1877. 213

XXXV. Leprosy in India. A Report by T. R. Lewis, M.B., Surgeon British Medical Department, and D. D. Cunningham. M.B.. Surgeon Indian Medical Department, Special Assistants to the Sanitary Commissioner with the Government of India. 8vo. pp. 73. Calcutta: Office of the Superintendent of Government Printing, 1877. 214

XXXVI. The "Oriental Sore," as observed in India. A Report by T. R. Lewis. M.B.. Surgeon British Medical Department, and D. D. Cunningham, M.B., Surgeon Indian Medical Department, Special Assistants to the Sanitary Commissioner with the Government of India. 8vo. pp. 59. Calcutta: Office of the Superintendent of Government Printing, 1877. . 216

XXXVII. Atlas of Skin Diseases. By Louis A. Duhring. M.D., Professor of Skin Diseases in the Hospital of the University of Pennsylvania; Physician to the Dispensary for Skin Diseases. Philadelphia, etc. Part II. Philadelphia: J. B. Lippincott & Co., 1877. 218

XXXVIII. Annual Report of the Supervising Surgeon-General of the Marine-Hospital Service of the United States. for the fiscal year 1875. By John M. Woodworth, M.D. 8vo. pp. 229. Washington: Government Printing-Office. 1876. 218

ART. PAGE

XXXIX. Medical Responsibility in the Choice of Anæsthetics, with a Table of the Anæsthetic employed, its Mode of Administration, and Results in nearly Fifty Large Hospitals in the United Kingdom. By H. Macnaughton Jones, M.D., M.Ch., etc. etc. pp. 37. London and Dublin, 1876. 221

XL. The Microscopist: A Manual of Microscopy and Compendium of the Microscopic Sciences. Third edition; re-written and greatly enlarged. By J. H. Wythe, A.M., M.D., Professor of Microscopy and Biology in the Medical College of the Pacific. 8vo. pp. 260. Philadelphia: Lindsay & Blakiston, 1877. 222

XLI. Transactions of State Medical Societies.

1. Transactions of the Nebraska State Medical Society. Sixth, Seventh, and Eighth Annual Meetings. 1874 to 1876. pp. 221. Lincoln, Neb., 1877.
2. Transactions of the Kansas Medical Society, May, 1876. pp. 67. Topeka, Kansas, 1877.
3. Transactions of the Michigan State Medical Society, May, 1876. pp. 363 to 497. Lansing, Mich., 1876.
4. Transactions of the Vermont Medical Society, for 1874, '5, and '6. pp. 397 to 562. 223

XLII. Die Kriegs-Chirurgie der letzten 150 Jahre in Preussen. Rede gehalten zur Feier des Stiftungstages der militärärztlichen Bildungs-Anstalten am 2 August, 1876. Von Dr. E. Gurlt, Professor der Chirurgie an der König Friedrich Wilhelms Universität zu Berlin.

Military Surgery during the past 150 years in Prussia; Oration delivered on the Anniversary of the Military Medical School on the 2d of August, 1876, by Dr. E. Gurlt, Professor of Surgery, etc. 226

XLIII. Transactions of the New York Pathological Society. Founded in 1844. Vol. I. Based on the Proceedings for the year 1875, and largely supplemented from the Records of 1844 to 1872. John C. Peters, M.D., Editor. 8vo. pp. lix., 272. New York: Wm. Wood & Co., 1876. . 228

XLIV. A Report to the Surgeon-General on the Transport of Sick and Wounded by Pack Animals. By George A. Otis, Assist. Surg. U. S. A. 4to. pp. 32. Government Printing Office, Washington, D. C., 1877. . 229

XLV. The Mortality of Surgical Operations in the upper Lake States, compared with that of other regions. By Edmund Andrews, A.M., M.D., Professor of Surgery in Chicago Medical College, assisted by Thomas B. Lacey, M.D. 8vo. pp. 123. Chicago: Hazlitt & Reed, 1877. 229

XLVI. Yellow Fever and Malarial Diseases—embracing a History of the Epidemics of Yellow Fever in Texas; New Views on its Diagnosis, Treatment, Propagation, and Control; Descriptions of Dengue, Malarial Fevers, Jaundice, the Spleen and its Diseases, and Diarrhœa Hemorrhagica; with Practical Remarks on their successful Treatment, etc. By Greenville Dowell, M.D., Professor of Surgery in Texas Medical College, etc. etc. 8vo. pp. 241. Philadelphia: Medical Publication Office, 1876. 230

XLVII. Myelitis of the Anterior Horns or Spinal Paralysis of the Adult and Child. By E. C. Seguin, M.D., etc. 8vo. pp. 120. New York: G. P. Putnam's Sons, 1877. 231

XLVIII. A Practical Treatise on the Diseases of Children. By J. Forsyth Meigs, M.D., Physician to the Pennsylvania Hospital, etc., and William Pepper, M.D., Professor of Clinical Medicine in the University of Pennsylvania, etc. Sixth edition, revised and enlarged. 8vo. pp. 1012. Philadelphia: Lindsay & Blakiston, 1877. 231

XLIX. Handbook for Hospital Visitors. 12mo. pp. 151. New York: G. P. Putnam's Sons, 1877. 232

L. The Medical Register for New England. By Francis H. Brown, M.D., M.M.S.M.S. 16mo. pp. xl., 413. Boston: H. O. Houghton & Co., 1877. 232

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES IN THE MEDICAL SCIENCES.

Anatomy and Physiology.

PAGE
The Nerves of the Labyrinth. By Horbaczewski. 233
On the Correlation between the Distribution of the Arteries and the Physiological Regions of the Brain. By M. Duret. . . 233
Researches on the Secretion of Sweat. By B. Luchsinger. . 234

Materia Medica and Therapeutics.

On Chloral. By Dr. Liebreich. . 235
The Mode of Action of Narcotics. By Dr. Binz. 236
The Physiological Action of Salicylate of Soda. By Dr. Danewsky. 236
Carbolated Camphor as a Surgical Dressing. By Dr. Soulez. . 237
On a New Remedy in Certain Forms of Skin-disease. By Dr. J. Ivor Murray. . . . 237
Chloral in Delirium Tremens. . 239

Medicine

Alterations in the Marrow of Bones in Pernicious Anæmia. By Cohnheim. 241
The Minute Anatomy of Scarlatina. By Dr. Klein. 241
Salicine in the Treatment of Rheumatism. By Mr. A. D. L. Napier. 243
Atrophy of Portions of the Brain after Amputation of the Arm. By M. Chuquet. . . . 244
Effects of Cutaneous Faradization in Hemianæsthesia of Cerebral Origin. By Dr. J. Grasset. . 245
The Trembling in Parkinson's Disease (Paralysis Agitans.) By M. Charcot. 246
Secondary Degenerations of the Spinal Cord in Cases of Critical Lesions of the Brain. By M. Pitres. 247
Severe Diphtheritic Paralysis cured by the Continuous Current. By Professor Peter. . . . 248
The Rale Mouillé. By Dr. Millon. 248
Aphonic Pectoriloquy. By Dr. Hermet. 249
Diagnosis of Aneurisms of the Aorta by the Laryngoscope. By Dr. Zawerthal. . . . 249
A Case of Diaphragmatic Hernia, with Incarceration and Perforation of the Stomach. By Dr. Klingelhoffer. 249
Management of the Bowels in Enteric Fever. By Dr. T. W. Grimshaw. 250
The Treatment of Catarrhal Jaundice by Large Injections of Water at Low Temperatures. By Dr. Edward Krull. . . 252
Effects of Ligature of the Renal Vein. By Buchwald and Litton. 252
Traumatic Albuminuria. By M. Terillon. 253
Anasarca treated by Drainage Tubes. By Dr. Southey. . 254
Pityriasis Rubra Universalis. By Dr. Hebra, Jr. . . . 255

Surgery.

Lymphadenoma. By M. Trélat. . 256
Epithelial Cancer of the Lips and Face. By Prof. Busch. . . 256
Extirpation of the Larynx. By M. Paul Berger. 258
Malignant Disease of the Œsophagus; Gastrostomy; Death. By Mr. Callender. . . . 258
Gastrotomy in Obstruction of the Œsophagus. By M. Lannelongue. 261

PAGE
Extirpation of the Spleen. By Prof. Billroth. 261
On Direct Wounds of the Ureter. By Mr. Timothy Holmes. . 263
Cancer of the Rectum treated by Excision. By M. Koeberlé. . 265
Scirrhus of the Prostate. By Dr. Dickinson. 265
Treatment of Atony of the Bladder. By Dr. Von Langenbeck. . 266
Obturator Hernia of the Bladder. By Dr. Natale Zoja. . . 267
On Necrosis without Suppuration: with a Case of Intra-Osseous Necrosis of the Femur, without Suppuration, for which Amputation at the Hip-joint was performed. By Mr. W. Morrant Baker. . 267
Amputation of the Hip-Joint. By Mr. Newman. 269
Dislocation of the Humerus with Rupture of the Axillary Artery. By M. Le Dentu. . . . 270
Resection of Joints. By Professor Hueter. 270
Osteoplastic Resection of the Superior Maxilla. By Dr. Burow. . 272
Excision of the Epiphysial Cartilages for arresting the Growth of Bones, and correcting certain Deformities of the Skeleton. By M. Ollier. 274
The Operative Treatment of Genu Valgum. By Dr. Alexander Ogston. 275

Ophthalmology and Otology.

Treatment of Granular Lids by Acetate of Lead. By Dr. Pierd'houy. 275
Certain Parenchymatous Diseases of the Cornea. By E. Raehlmann. 276
Diabetic Cataract, with Sugar in the Crystalline Lens. By M. Teillais. 276
Ectropium of both Upper Eyelids. By Prof. von Zehender. . . 277
A Means of Diagnosis of Anomalies in the Sound-conducting Apparatus. By Prof. Gruber. . . 277

Midwifery and Gynæcology.

On Fibroid Tumour complicating Delivery. By Dr. Playfair. . 277
Ether-spray externally in Post-partum Hemorrhage. By Mr. W. Handsell Griffiths. . . 278
The Causation, Diagnosis, and Treatment of Uretero-vaginal Fistula. By Landau. . . 279
Removal of large Fibroid Uterus and both Ovaries. By Mr. J. Knowsley Thornton. . . 279
The Diagnosis of Cysts of the Broad Ligament. By Prof. Gusserow. 281
Three hundred additional Cases of Ovariotomy: with Remarks on Drainage of the Peritoneal Cavity. By Mr. T. Spencer Wells. 282
On Twenty-five Cases of Ovariotomy, with some Remarks on the Causes and Treatment of the Fever so frequently following the Operation. By Mr. J. Knowsley Thornton. . . 285

AMERICAN INTELLIGENCE.

Original Communications.

Imperforate Anus; the Rectum opening into the Vulva; successful Operation. By W. N. McCoy, M.D., of Jeffersonville, Indiana. 287
Menstruation by the Pedicle, after Ovariotomy. By Walter F. Atlee, M.D., of Philadelphia. . 288
Paper Splints. By M. R. Speare, M.D., of Rochester, New York. 289
Note on the Use of Ergot in Urethral Hemorrhage. By Geo. Halsted Boyland, M.A., M.D. . 290

Domestic Summary.

Successful Case of Laparotomy for Intussusception. By Dr. H. B. Sands. 291
Excision of Rectum for Cancer. By Dr. Briddon. . . . 295
The Prophylactic Treatment of Placenta Prævia. By Dr. T. Gaillard Thomas. . . . 297

THE

AMERICAN JOURNAL

OF THE MEDICAL SCIENCES

FOR JULY 1877.

ARTICLE I.

ON THE CAUSES OF THE EPIDEMIC OF YELLOW FEVER AT SAVANNAH, GEORGIA, IN 1876. By ALFRED A. WOODHULL, M.D., Surgeon U. S. Army.[1]

IN the preparation of this report I have received much valuable aid from various persons, and especially from Dr. George H. Stone, of the Marine Hospital Service; the municipal officers, especially the City Surveyor, Mr. Hogg; Dr. J. F. McFarland, Health Officer; Dr. Wm. Duncan; a citizens' committee appointed at the instance of the Benevolent Association, whose chairman is Hon. John Screven; the Georgia State Board of Health; and the discussions of the Georgia Medical Society of Savannah. Also Surgeon E. McClellan, U. S. Army, visited Savannah by the invitation of the State Board of Health as an investigator, with them, into the causes of the disease, and from his experience elsewhere and his researches here, I have profited much.

I have sought to confirm all important facts and to carefully weigh conflicting evidence, and have not hesitated to reject what seems unfounded. It is also proper to premise, as an element of my personal equation, that my education and reading had led me to look upon yellow fever in the United States as of necessarily exotic origin, and that I began the examination holding those views.

[[1] This paper is a part of an official report by Surgeon Woodhull upon the epidemic of Savannah in 1876, and is furnished by permission of the Surgeon-General. To bring it within the limits of a journal article we have omitted some paragraphs and condensed others, and it has been necessary to do this without consultation with the author—time and opportunity being wanting.

J. S. BILLINGS, *Surgeon U. S. A.*,
D. L. HUNTINGTON, *Surgeon U. S. A.*]

To intelligently discuss the subject, some knowledge of the topography and history of Savannah is necessary. The accompanying map (pages 20–21), from one prepared by Mr. J. B. Hogg, City Surveyor, may be depended upon for general accuracy.

Savannah (lat. 32° 5′ N., long. 81° 5′ W.) lies on a sandy plateau or ridge, about forty-five feet above the Savannah River, which here runs nearly east, and is distant from the ocean about twelve miles in a right line, and eighteen by the course of the stream. The plain, which is about a mile and a half wide, gradually slopes towards swamps on the south, and suddenly falls away to lowlands, which have an average level of five (5) feet above low water on the east and west. North of the city, across the main channel of the river and two hundred (200) yards distant, is Hutchinson's Island, equally low, or lower, and swampy. The territory shaded on the map is now owned or controlled by the city, and that on the west is known collectively as the Springfield plantation. This low belt, which can be restrained from lapsing into its natural condition of swamps only by constant care, is about half a mile wide on the west, and of irregular shape and indefinite extent in other directions. Only those lands that immediately adjoin the city are under any provision of dry culture or drainage. Their average width is half a mile. Beyond them, in nearly every direction, are undrained lands and swamps. South of the city the water-shed is such that all the rain falling north of a point three (3) miles distant flows northward through the Springfield plantation to the Savannah River, while that falling south of this point seeks the Little Ogeechee. This crest is about five (5) feet high. A similar division of the rain-fall takes place at another point three (3) miles southeast of the city.

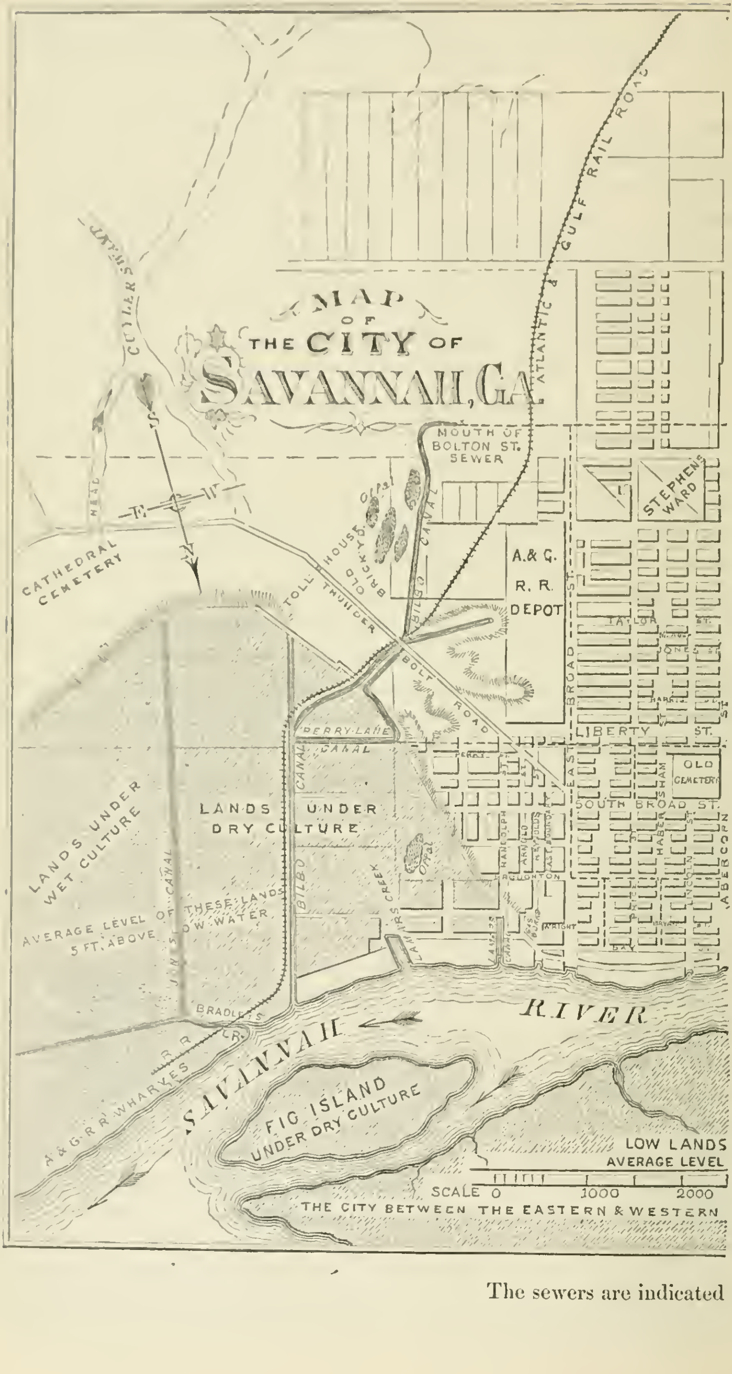
The low lands around the city in former years were all devoted to the cultivation of rice, which involves the alternate flooding and exposure of the fields in hot weather and the generation of intense paludal malaria. In those years Savannah was fearfully unhealthy; the mortality from all causes in 1817, when yellow fever also was present, was 1 in $9\frac{1}{2}$. In the last six months of 1828, out of a garrison of ninety (90) men, forty-one (41) men besides nineteen (19) women and children died of malarial diseases. (The post was then in proximity to undrained swamps, and an extensive rice field had recently been laid out at a little distance.)

In the spring of 1817 contracts were made for the perpetual change from wet to dry culture of the lowlands lying northeast and west of the city, in order "to check, if not prevent, the ravages heretofore produced by autumnal fevers," and the mortality fell in 1818 to 1 in $62\frac{3}{4}$ of the residents of the town. It rose in 1819 to 1 in 43, and, owing as was supposed to neglect of the drainage, in 1820 to 1 in 5, when yellow fever again raged. In the three succeeding years, when drainage was improved, it was 1 in 34. In 1826 the jurisdictional limits were extended one mile beyond those of the city and hamlets of Savannah, and the cultivation of rice was prohibited therein; and in 1850 the Springfield plantation was bought by the city "for the sole purpose of reducing to and keeping in a state of dry culture the said tract of land, which is low and swampy, and has been in its wet state the cause of disease to the people of Savannah."

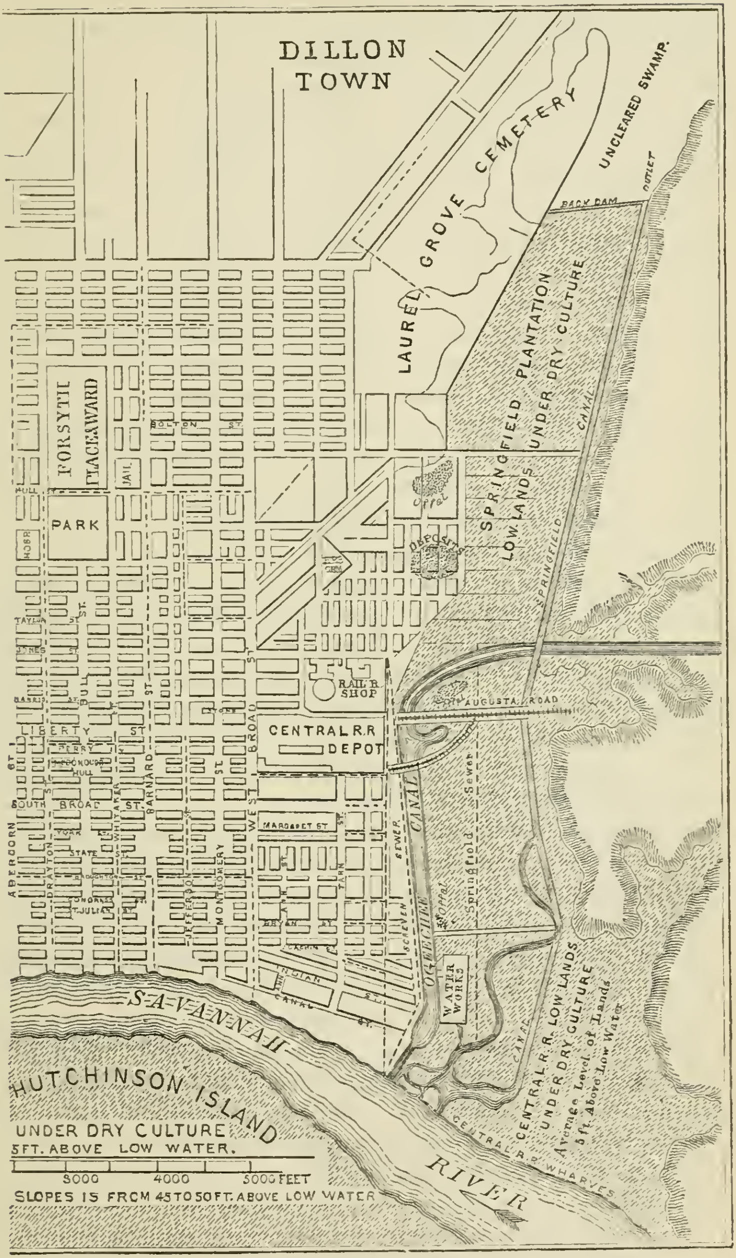
Savannah was founded in 1733. The population in 1850 was 15,312, in 1860, 22,299, in 1870, 28,235, of whom 13,068 were coloured. The estimated population in 1876 was 30,000, nearly half being coloured. The blocks are small, the streets are numerous and broad, open squares or parks abound, so that the city, except in the fringe of hamlets that surround and are now incorporated with it, is sparsely inhabited. These conditions, together with the abundance of foliage and the mild winter climate conducive to open-air life, are sanitary factors favourable to its healthfulness.

But there are other agencies constantly in operation that have an opposite influence. The east and west flanks of the city are filled with the small and crowded tenements of the labouring classes, white and black. Many of those streets are narrow, and they have practically no sewers and no open-air spaces, except the unbuilt slopes leading to the lowlands.

I have found it difficult to determine what underlies the sand upon which the city is built. One authority asserts that at an average depth of thirty (30) feet there is a stiff blue clay, having a gentle trend toward the river, others that there are quicksands traversed by bars of clay and narrow strips of ferruginous sandstone which occasionally approach the surface. It is possible that both are correct, the clay being the support of the quicksand, the superimposed sand, and the interjected bars and sandstone. Practically, however, the city rests upon a sand bed, a fixed sand dune. The average upper limit of the ground-water is from ten to twenty feet below the surface, depending upon the season and the part of the city—rising toward the south. Springs or well-waters are found three or four feet lower. The limit of ground-water receded three or four feet under the influence of the sewers, and the wells had to be deepened generally. Permeable soils like this allow from 60 to 90 per cent. of falling water to penetrate, and also allow effluvia from contained decomposing matters to pass through them for long distances. The cleanliness of sandy places is, therefore, often greater in appearance than in fact; and I believe these characteristics may have an appreciable effect upon the public health. To this date but very few of the important streets are paved. and in the outer parts of the city paved sidewalks are the exception. Obviously very much organic matter must have become incorporated with the soil during its long occupation. This has been increased by the disposition of refuse. Nearly all the houses face north and south, and each ordinary block is bisected east and west by a lane. The house lots run through to these lanes, and into them much of the slops and offal from the dwelling is thrown, whence it is removed by scavengers. The soil is also much more seriously polluted, as will be presently shown.



The sewers are indicated



by dotted lines.

A systematic water-supply was introduced in 1854, previous to which the city depended upon wells and pumps, which are in nearly all the open squares, and in most of the wide streets. By many persons the pump-water is still preferred and used. The sewerage system of Savannah is of very recent date. The short line on West Broad Street was built in 1842 to carry off the rain-fall, and has no house connection. A sewer for the same purpose was built from the intersection of McDonough and Whitaker Streets running out Barnard Street, and discharging its contents in the then existing lowlands east of the present Forsyth Place. It had no house connections. This, as seen on the map, has since been modified, and is embraced in the present system. In 1852 what is known as the Sereven sewer was built. It is really a broad drain or ditch running along the slope next the Springfield plantation, which it assists to drain, and it empties into the river near the mouth of the present canal.

In 1858 the Perry Lane sewer, having at first no house connections, was built. This now has water-closet connections, and is tapped by the East Broad Street sewer, so that nearly all its contents, and probably all the contained excrementitial matters, flow to Bolton Street.

The present system of sewerage, which is by no means sufficient for the whole city, was carried into operation between the winters of 1870–71 and 1872–73. Large portions, especially the more densely populated outskirts of the town, do not profit by it. Except the small branches emptying into the river on Whitaker, West Broad, and West Boundary Streets, and a very moderate non-excrementitial discharge from the Perry lane terminus on the east, the whole flow of this system is into the Bolton Street main, debouching in the southeast quarter. The ultimate disposition of this sewage will be explained later.

Before the introduction of the sewers, the domestic waste water and the contents of all privy vaults and water-closets were disposed of in one of two ways, viz.: (1) A hole was dug adjacent to the privy, either in the private yard or the public lane, and the contents were covered up therein. (2) A dry well was used. A dry well is a large well-like excavation carried down to, or nearly to, the ordinary ground-water, and walled with brick laid dry (*i. e.* not in mortar or cement), with a dome-like roof which a little below the surface of the ground is closed with an iron plate, and the whole covered with earth. Into this well the contents of sinks and water-closets are led, and, in theory, the liquid matter passes off through the porous brickwork, and the solid substances gradually accumulate until they are mechanically removed through the top at suitable times. But in practice it is found that the grease and oily refuse from the kitchens coat the inner surface of the wall, often rendering it in effect impermeable to much of the fluid contents, and thus with age the wells fill up more quickly than at first. It is obvious from the soakage thus provided for, as well as from the systematic transfers of the solid matters into it, how saturated with decomposing waste and excrementitious matter the soil of Savannah must be. These wells often being practically hermetically sealed contain gases under considerable pressure which are discharged upwards into the closets and basins, sometimes bubbling up through the traps; and, indeed, fæcal matter has been actually thrown up into a wash-hand basin connected with such a well. The air is, therefore, not only indirectly, but is sometimes directly, poisoned from these sewers. Before the sewers were constructed, the ordinary privies and wells all over the city, according to credible witnesses, were constant and patent nuisances in the hot weather. Very many of these, not only without, but within the lines of the sewers, yet remain in use, and the customary mode of cleansing them to this day is that already described of transferring their contents to adjacent pits. Consequently the evils just detailed are only lessened, not abolished. In 1871 it was enacted that the contents of privies and dry wells, when removed, should be deposited a mile beyond the city limits. I do not know that this ordinance has been repealed, but it has been practically a dead letter since 1873, and the old way is in general use. Besides this, defective plumbing is so common that many of the houses connected with the sewers receive at times upward discharges of sewer gas. The sewers of Savannah effect the double purpose of receiving the water-closet discharge, and of draining the city by quickly carrying off the heavy rainfalls, and also drying the sub-soil. To accomplish this drainage they are laid dry in their lower courses, thus permitting the sub-soil water to leak into them. This has, however, also the opposite effect of allowing in dry seasons the fluids in the sewers themselves to leak out, and the solid and decomposing contents to lie in bars, and to clog the ordinary water-way. The extreme porosity of the brick in common use aids these results.

The intra-mural condition, therefore, although better than formerly, is such as to facilitate the propagation of filth-diseases.

There is one condition that may influence other epidemics, notably cholera or dysentery, but which I do not believe materially bore upon the subject under discussion; it should, nevertheless, be noted as an important sanitary or unsanitary possibility. It is that the city water-works are supplied from a tidal inlet directly above the outlets of the Ogeechee Canal and the Screven sewer, immediately below the Central Railroad wharves, with their necessary refuse and débris, and literally at the point of discharge of the Springfield plantation drainage. The water is filtered only so far as to prevent the introduction of gross matters that might damage the works, and it possesses an unusual combination of facilities for receiving serious contamination.

A few words upon the meteorology and quarantine of Savannah will complete the discussion of the constant condition of the city.

A reference to the charts and tables of Lorin Blodget, to the Army Meteorological Register for 1843–54 inclusive, and to the meteorological observations taken at this post for 1870–75 inclusive, shows the mean summer temperature of Savannah to be not far from 81°, and an average yearly rain-fall of about 54 inches, of which May, June, and July receive about 4, 5, and 7 inches respectively.

By the laws of Georgia each municipality regulates its own quarantine, the jurisdiction of Savannah extending from Ossabaw Sound to the South Carolina line. A health officer is appointed by, and is responsible only to, the corporate authorities, and he removes vessels to and detains them at quarantine at his discretion. Until 1870, the quarantine station was opposite Fort Jackson, three miles below the city. On account of the malarious vicinity, it was then removed to opposite Tybee Light, 16 or 17 miles below. The quarantine is usually established about June 1st, and, if there is no reason to suspect sickness having been aboard, the vessel is allowed to come up when ten days have elapsed from its date of leaving the foreign port. This has been the custom at least since 1858. If the health officer suspects sickness, he uses his discretion as to the detention and disinfection. This year the vessels in quarantine were ordered to be fumigated with chlorine, the holds white-washed, the upper works washed and generally painted, and bedding and clothing aired or washed. There is no certainty that these orders were complied with, although the health officer supposes such to be the case. There are no hospitals for the sick, no warehouses for the cargo, no facilities of any kind, except the anchorage ground, for the performance of the duties of quarantine; and the health officer has no means to enforce his orders or to prevent the communication of crews with the city, except the penalties of fine if violation is detected. I am obliged to say that, although the quarantine is conceded to have been better than usual this year, I believe it is but little more than nominal.

Savannah has been ravaged by yellow fever in previous years, notably in 1820, 1854, and 1858; to a less degree in 1807, '08, '17, '19, '27, '39, '40, '41, '52, '61, '64, and '71; and while some physicians deny that any cases occurred in the last-named years, others believe that sporadic cases occur nearly every summer. The drift of professional opinion in Savannah has been in favor of the domestic origin of the disease, and certainly (perhaps on that very account) the foreign genesis of no previous epidemic here has been clearly demonstrated. The general sickliness of the city, and the frequent presence of yellow fever in the earlier years of the century, were attributed to the rice lands; and the mortality from all causes fell from 1 in $9\frac{1}{2}$ in 1817 to 1 in $62\frac{3}{4}$ in 1818, when dry culture was introduced. In 1820, the epidemic setting in in August was regarded as but a more virulent form of the common endemic, and was associated in the popular mind with the imperfect care of the newly-drained lowlands. In the report made by Dr. W. R. Waring in 1821, and in Dr. W. C. Daniells' Observations on the Autumnal Fevers of Savannah, published in 1826, while both regard the yellow fever of 1817 and 1820 as the same in nature but different in grade with the ordinary malarial fever of the locality, I find the premature warm weather of the preceding winter and spring, an early and continued rain-fall excessive in amount, an excess of filth, of foul streets, of crowded and decaying wooden houses. mentioned as the exciting causes. From '27 to '52 there was no yellow fever to speak of, and the general belief was that the dry-culture system was successful in warding off the disease. In 1820, the whites remaining were estimated at 3000, and the deaths at 666, or more than one in five. This, however, includes all the malarial cases from May to December. In 1852, there were probably nearly five hundred cases. In 1854, 580 deaths among the whites and 14 among the blacks occurred in a present population of about 12,000. In 1858, with a larger population than previous epidemic years, 116 deaths were reported, although there should probably be more, as the disease though mild was general. In 1864, the cases have been charged as due to a defensive overflow of the Springfield plantation; but as that occurred very late in the fall or in the early winter, there could have been no connection with it. In 1871, the outbreak occurred in October, and was confined to the western part of the city; and as the Springfield plantation had been accidentally overflowed in August, that has been spoken of as the cause. But it is well established, I believe. that the family first attacked (Ganoway) had, two or three weeks before, arrived from Charleston, where the fever was then raging. The one fact may balance the other.

The first clearly recognized case of yellow fever in 1876 occurred in the private practice of Dr. George H. Stone, on August 21st, who found James Patrick Cleary, æt. 12, in Wright St., in the last stages of yellow fever. The opinion was confirmed by an autopsy a few hours later.

The second nominal case was a child of John Lynch, five doors from the Cleary house, in Wright St., dying 22d August. Other cases were recognized in rapid succession in that vicinity, and, a few days later, in other parts of the town.

After the presence of yellow fever was unmistakable, previous cases of disease and death were reviewed by the attending physicians and it became clear that the disease had been present longer than was at first suspected. While the earlier cases are the important ones in any epidemic, it is especially difficult to determine which are the first in yellow fever in a region where malarious disease is common. The admitted symptomatic likeness between certain grades of remittent and yellow fevers leads them to be constantly confounded, and where yellow fever is not suspected they are all grouped as modifications of the ordinary remittent. On the other hand, after yellow fever has appeared, the tendency is to pronounce all the severer or peculiar cases as of that disease, and a natural disposition to magnify the past may lead the best-trained minds into error when exact notes have not been taken on the spot. and when recovery or the want of an autopsy has precluded physical demonstration. And the bias, conscious or unconscious, in the minds of the reporters as to its exotic or domestic origin, increases the difficulty of establishing its actual source.

Some investigators of this epidemic are disposed to throw out every case anterior to that of Cleary, on the ground that it was not recognized at the time. If physicians were infallible, that would be legitimate; but we must take men and their affairs as we find them, and bearing in mind that it was many years since such an epidemic had befallen Savannah, that the profession was not anticipating it, and that a large proportion of those treating it had never before seen the disease, it seems only fair to suppose that honest errors in diagnosis might occur, to be changed after equally honest revision. I have, therefore, as carefully and as impartially as I am able, traced out all the introductory or inaugural cases of which I could hear anything—I dare not say the field is exhausted—and invite attention to these as the significant steps of the disease.

It was asserted with much confidence that early in the season a plumber named Masters was employed at Tybee Island, and while there boarded a Spanish vessel in quarantine, contracted yellow fever, and was treated for it in the city. Inquiry before the Citizens' Committee developed that the man had been neither at Tybee, nor on any vessel, nor did he have the fever. Again it was said that the Spanish sailors who had escaped from quarantine had visited a grocery on the outskirts of the town, and thus *might* have introduced the disease. But the grocer who was given as authority denies the story *in toto*. These are cited as instances of the reports and rumors that were current and that were required to be traced out.

The first suspected case is that of a child æt. 5 years, taken sick 4th June at 97 Jones St., between Drayton and Abercorn, who recovered. I am unable to accept this as yellow fever.[1]

Next, it is asserted that the American schooner Jennie E. Simmons of Philadelphia, just arrived with hay from New York, was discharging July 19th, and, on the same day, a man, violently ill with pain and vomiting, was taken from her to the Marine Hospital, and further, that this man was one of a part of her crew that had been obtained off a brig just arrived from the West Indies, on which two or more deaths from yellow fever had occurred. The Harbor Masters' records show that the Simmons arrived 26th (not 19th) July, unloaded at Central R. R. wharf, and proceeded to Atlantic and Gulf R. R. wharf for a cargo. The Marine Hospital records show that Louis Lagrange was admitted 27th July from the Jennie E. Simmons with "intermittent fever and cramps," and was discharged cured 3d August. One man with primary syphilis was admitted later from the same vessel, but no others from any cause. This documentary evidence was confirmed by Captain Young, master of the Simmons, with the additional information that he had no reason to believe that any sailors lately from the West Indies were with him at that time.

---

[1] The symptoms were mainly nausea and vomiting, without fever. The case was treated by Dr. J. B. Read, a physician of much experience, who thinks it was not yellow fever.

There are, deserving analysis, at least six probable cases (besides the western group), anterior to the death of 21st August.

These are: (1) J. W. Schull, æt. 27, of the American schooner F. A. Server, lying at the Atlantic and Gulf Railroad wharves. Being ill, he was carried by water, July 25, to Mrs. Hearns's boarding house, Indian St., corner of Ann St. On the afternoon of 28th he was removed to the Marine Hospital, corner Taylor and Habersham Sts. From the original notes, kindly turned over to me by Dr. Geo. H. Stone in charge, it appears that on the 30th a very sudden and violent hemorrhage from the mouth set in, and he died almost at once. At the autopsy twenty-four hours later, the skin was yellow, the lungs were infiltrated; the liver was of a complete box-wood color. In Dr. Stone's report for July he remarks of this case that it would be of interest only in the event that yellow fever should occur that season, and indeed it has thus become so. It is evident that this was, as I believe it is universally admitted to be, a case of yellow fever.

(2) On 6th August Thomas Cleary, æt. 15, a brother of the first nominal case, Patrick Cleary, was taken sick and was confined to his bed nine days. His subsequently jaundiced skin and the outline of the illness, as given by himself and his family, have satisfied all professional inquiries that his disease was yellow fever. His residence was on Wright St.

(3) About the same time, that is, between 6th and 10th, James McCarty, æt. about 13, living on the east side of East Boundary Street, the second door from its head, was taken sick and remained so until about 20th. He was not again sick during the season, and it does not seem unreasonable to suppose that this attack may have been of yellow fever.

(4) Richard Grandison, æt. about 8, a mulatto, residing on the east side of Randolph Street, the second door north of Liberty Street, on the afternoon of August 15th complained of headache. He was first seen professionally 17th; he had high fever and violent delirium, his skin was yellow, and he vomited matters described as looking "like *coffee grounds;*" he died on the night of 18th. There was no autopsy, but his physician believes that the case was one of yellow fever, in which I concur.

(5) Martha Hart's child, west side of Reynolds Street, two doors north of Broughton, had black vomit 18th of August, but convalesced.

(6) In the night of August 19th, John Connors, æt. 10½, living at 21 York Street, between Price and Houston, was suddenly attacked with a mono-paroxysmal fever. The course of the illness was such as to lead the physician, in reviewing the case, to regard it as a mild one of yellow fever. The boy remained at home all the season and escaped the fever, although all the family, four in number, were attacked.

Wright Street, the home of the Clearys, is a cul-de-sac, containing six or seven houses. This region, known as "The Fort," was the first focus of the disease.

Thomas Cleary was taken sick 6th August; James McCarty, east side of East Boundary, near its head, about the same time; the Hart child, on Reynolds Street, just in rear of McCarty, about 15th; Patrick Cleary, attacked 17th, died 21st; Joseph Lynch, æt. 3, five doors further east and near the head of the street, died 22d; John Wade, æt. 12; and Edward Roach, adult, residing at 2 and 4 East Broad Street, a few doors north of the Wright Street opening; and Ella Scott, Reynolds Street, nearly in rear of McCarty's, were all attacked 20th, and all recovered.

The number constantly increased, but these are mentioned as among the first, and, as the map shows, as all being literally within a stone's throw of the Cleary house.

About the time that the disease attracted special attention in the northeasterly region, a series of rapidly occurring cases in the western part of the town made up what was known as the Stone Street outbreak, which will be discussed hereafter.

The evidence as to the special local conditions affecting the city in 1876 is conflicting, but may be summed up as follows: The winter of 1875–6 was very mild, less rain fell during the spring than usual; a great excess of rain fell in June, and there was general complaint of the extraordinary degree and duration of the heat.

The sewers within the town, after their washing out by the heavy rains of the early summer, were very offensive to the senses at special points, presumably by the lodging of fæcal matter, for no arrangements had been made to flush them, nor was it customary to attempt to do so. Besides, a number of cess-pools and sinks gave off very disagreeable odours, and the occasional cleaning of these in the hot season, although forbidden by ordinance, increased the atmospheric impurities. After the epidemic was recognized, water was turned into the sewers, but before that period the air in certain localities was very foul; and, indeed, during its prevalence complaints were made of their dry and fetid condition. Hutchinson's Island, nominally under dry culture, has been neglected since the war, and this year has been badly overflowed and covered with pools of standing water. On the west, the Springfield plantation was not well drained and was thoroughly flooded by the June rains. So much surface sand and vegetable débris from the swamps find their way into and clog those drains, that constant care is necessary to keep them in effective operation. Following the June rains the decaying organic matter probably emitted, as charged, repulsive effluvia, and the ardent advocates of the local, and especially the malarial, origin of the disease insist that these grounds were substantially undrained, foul-smelling, and wretchedly boggy all the season, and were a potent cause of the disease. Others, equally intelligent, and fully as trustworthy, assert that they were in no unusual state, except so far as the June rain-fall overflowed them. From their condition in December I suppose that, whatever may be their ordinary state, they must have been very wet, if not positively swampy, in the summer, and that the decomposing drift of the June flood was likely to be offensive and injurious.

Equally if not more important is the condition induced by the disposition of the city offal, which is the scavengers' sweepings of the city highways and yards, including dead animals and decaying vegetable matter. Along the western line this was in large heaps within the corporate limits, as the map shows, and these piles are asserted to have been, as they well might be, very offensive. Fully as serious a condition resulted from the garbage contractor utilizing similar refuse to fill up and fertilize a number of acres under his control on the city border of the Springfield plantation. This has been done to the depth of a foot or more over a considerable area. and under the combined influence of heat and moisture the compound becomes a slowly decomposing organic mass.

The lowlands, east of a line nearly parallel with the built-up edge of the town, and about three-fourths of a mile distant, are devoted to rice. Between the rice lands and the bluff the country had been pretty thoroughly drained, but during the comparatively dry winter and spring the drains, on both southeast and east, became more or less choked and broken down by drifting débris and by crossing cattle-paths, and, as a practical consequence, sportsmen found the area of the snipe-fields, which coincide with the wet grounds, much enlarged and running close to the city slopes. As seen on the map, there are several conduits for the conveyance of water to the river. One marked as a canal, namely Lamar's, requires attention. It is a short broad channel, not to be confounded with Lamar's Creek, at the base of the gas-house, or Fort Hill, parallel to Randolph Street, and has been disused for years. Its lower or river end is being filled with débris from the cotton presses, and, as a consequence, water is no longer found there, although it receives the flow from a city drain, so that the unchoked part is a simple bog, waist deep, in which it is said, that, last summer, shavings, garbage, dead animals, and other putrefying material, making it foul and fetid, could be found. A drain that runs along the base of the bluff from the Perry Lane Sewer to the Lamar Mill is insufficient to keep the soil dry, although it prevents large accumulations of water. The common between the toll-gate and the railroad crossing on the Thunderbolt Road is known as the old brickfield. This extends both sides of the roadway, and is filled with excavations deep and shallow, generally holding stagnant water. It is also a dumping ground for refuse, and although higher than the adjacent land on either side, is usually wet and noisome.

The most important factor in this part of the problem, and the one that, in the minds of some, is the key to the whole mystery, is the Bilbo Canal, and especially its condition in 1876. The city sewers, with the insignificant exceptions already noted, concentrate in the Bolton Street line, and find a common outlet in a low region in the southeast part of the town, as indicated in the map. In order to convey this discharge to the river, a passage was sought through an old rice-canal, known as Bilbo's, used in modern years to drain the easterly dry culture lands. Branches were separated from it as far as possible, flood-gates were provided for the river terminus, and, taking advantage of a natural depression, a somewhat winding ditch connected the Bolton Street outlet of the sewers with the canal proper. This gave an open drain or channel about one and one-third miles long, through which the sewage of the city found its way to the river. From Bolton Street to Thunderbolt Road the canal is thirty feet wide at top and twenty feet at bottom; from the Thunderbolt Road to Lawton's Bridge, at the intersection of the Perry Lane Canal, thirty-five feet wide at top and twenty-five at bottom; and from the bridge to the river forty feet wide at top and thirty feet at bottom. In theory, the flood-gates were opened with every tide, and the consequent influx and outflow of the river water washed out the channel twice daily. Testimony as to this canal is very conflicting—some witnesses going so far as to assert that the gates were turned but once in the entire summer before the appearance of the epidemic. Others have said that its condition was not materially different from that of former years. The city surveyor thinks the exact number of times it was flushed before the epidemic was six. But the general evidence concurs in establishing that the canal was very foul. Its waters were sluggish, for the influence of the tide when admitted did not extend beyond the railroad crossing, their depth, especially in the upper portion, was slight, innumerable bars in the channel and the irregularities of outline of the sinuous banks detained the fæcal matters, and the torrid sun generated gases that bubbled up through the slimy coating, so that along its whole course the senses of sight and smell were offended. It was in effect a huge, uncovered, shallow sewer charged with the excrementitial discharges of a large portion of the city, fully exposed to atmospheric influences, and giving off gases that were certainly offensive and were probably poisonous. The number of water-closet connections with these sewers, to date, is less than two hundred; but it must be remembered that these connections embrace all the larger establishments, such as the hotels and other crowded houses. Persons driving on the Thunderbolt Road, although only crossing it at a single point, complained of it: and at least one case is known where a gentleman, who was obliged to walk within the influence of its southerly range, was so affected as to be sickened to the extent of vomiting. The Bilbo Canal was, as far as I can judge, the most important point wherein this year differed from its predecessors, and I regard its state and that of the urban sinks and dry wells as the most serious local conditions that influenced the epidemic.

On the river bank, about 1200 yards below the city bluff, are the wharves of the Atlantic and Gulf railroad. To this immediate region does the popular mind turn as to the hot-bed that received and nurtured the seeds of the disease. The reasons are plausible, and they may be sound. These wharves are open structures, built upon piles, and a roadway and approach to the whole has been made chiefly with ballast from the shipping. A freight track runs from the main line to those wharves, from which switches, numbered 5, 6, 7, 8, 9, 10, one hundred feet apart, are laid to the water's edge. Track No. 5 is laid between 700 and 800 feet from Bradley's Creek; and the first four numbers have not yet been built. That part of the ballast just referred to, that was received from Cuba, has attracted particular attention as a possible source of this disease. Directly in rear of the wharves, and extending indefinitely to the east, are rice fields that, alternately flooded and drawn off, generate intense malaria. The long flow near midsummer leaves the ground covered with a dense coating of ill-smelling decomposing vegetation, from which very serious consequences may befall those exposed to it.

The meteorology may be briefly noted, thus: The past summer is universally regarded as having been excessively hot and sultry. The independent observations taken at the Signal Station and at Oglethorpe Barracks in 1876 give these results:—

		May.	June.	July.	August.	Summer mean.
Mean temp.	Og. Bks.	74°.50	79°.89	83°.93	81°.05	81°.62
	Sig. Stat.	71°.02	80°.56	84°.50	82°.10	82°.38
Rain-fall	Og. Bks.	2.19	17.54	7.65	6.70	64.15
	Sig. Stat.	2.25	18.80	6.11	6.88	64.83

showing them to be in practical accord.

We have already found that the average mean summer temperature of Savannah in the shade is about 81° F., and the deduction from these figures is that, contrary to the popular impression, the temperature of the past summer, 82° F., was but a very little above the average; and that July and August by the highest figures were but .68° and 1°.24 respectively above the usual mean.

The annual rain-fall, however, was ten inches in excess, and was so distributed that three or four times the usual quantity fell in the early summer. It might be presumed, therefore, that the degree of humidity would be an index, if not a cause, of the oppressive feeling. The Signal Service figures, however, are as follows:—

Rel. hum.	June.	July.	Aug.	Sept.	Average.
1871	75.6	74.1	80.4	82.4	78.12
1872	69.4	67.9	74.6	74.3	71.55
1873	74.8	75.0	78.0	81.9	77.42
1874	73.2	78.8	74.2	77.6	75.95
1875	71.4	65.0	74.9	78.0	72.32
Average 5 years	72.88	72.16	76.42	78.82	75.07
1876	71.2	68.7	72.6	70.4	70.72

showing a decided average reduction in the atmospheric moisture. This curious want of relation between the degrees of humidity and of heat and sensation, I am unable to explain, and simply note it as a fact. These figures merely indicate that those variations in the meteorological condition are not important factors in the causation of the disease, and indirectly confirm Parkes' remark on yellow fever (*Hygiene*, 3d ed. p. 465), that "The observations at Lisbon [in 1857] which Lyons has recorded show no relation to the dew-point." It is possible that the solar radiation and the evaporation, if known, would afford a clue, but unfortunately there are no recorded observations of these.

The condition of Savannah in the summer of 1876 may be epitomized as follows: on the west, north, and southeast, and, in a less degree, on the east, there were badly drained lowlands that had been flooded by unusually heavy rains in June; on three sides, but especially on the west, large amounts of garbage were deposited near the city; the sewers gave off foul gases, sufficiently to attract general attention; the supply of the city waterworks was drawn from contaminated sources; the soil of the city was probably saturated with the products of animal decomposition, and the wells, from which much of the drinking water was drawn, penetrated this soil; to the east, at an average distance of 700 yards, was the open and practically stagnant sewer, known as the Bilbo canal, and 400 yards further east, was a rice plantation in full cultivation; 1200 yards down the river, were two vessels from Cuba with a certain amount of Cuban ballast; two other vessels, and another quantity of ballast, also from Cuba, were at the wharves on the northwest; about forty-five Spanish seamen and their bedding, last from Cuba, were present in the city; the average temperature was 82° F., and the average relative humidity was not quite 71.

The chief physical differences between 1876 and the usual years, were that malarial causes were in excess; the Bilbo canal was unusually foul, the temperature was one degree higher, and the relative humidity three and a half parts in the hundred less than usual.

To this must be added an economic condition that probably increased the susceptibility of the inhabitants to disease. The financial depression that has overspread the country, notably since 1873, has been especially severe in this locality, and all classes of the community have not only been mentally depressed, but there has been an unusual degree of actual privation and suffering, with no prospect of approaching relief. This lowering of the mental and physical tone, and the inability to assist themselves, undoubtedly increased the predisposition to sickness and lessened the power of recovery. In like manner the African and mixed races, who suffered more than in previous years, but not to the extent popularly supposed, probably owe their greater liability and suffering, in this outbreak, to the withdrawal of the care that formerly had a pecuniary motive for its exercise, and to their lowered hygienic surroundings.

Besides all this, the municipality, suffering under heavy financial burdens, had reduced its executive force to the minimum, and those evils that were the least conspicuous in their immediate effects were the longest tolerated.

We are now prepared to treat of the origin and course of the epidemic.

An epidemic of yellow fever demands (*a*) the presence of the yellow fever poison, and (*b*) the yet unanalyzed condition known as the epidemic atmosphere.

In this particular instance the first point revolves itself into two questions:—

(1) Was the poison imported?

(2) Was it of local origin?

That the epidemic atmosphere existed, there was unfortunately overwhelming proof.

I will first consider the question of the importation of the poison.

There is no evidence of which I know anything as to the presence of yellow fever in any part of the United States in 1876, before it appeared in Savannah.

It is, however, well known that the yellow fever raged with unusual violence in Havana, and probably in other parts of Cuba, from the middle of May to the middle of September last, and that it was most severe in the harbours and among the shipping. It is, therefore, reasonable to suppose that some vessel coming directly from Cuba may have imported it. We have, however, the date of the first case, Schull, fixed at July 25. Thomas Cleary's, August 6, Patrick Cleary's, August 17, and the probable case of McCarty, 6–8, Grandison, 15, and Connors, 19, August, all in the eastern part of the city.

The official records show that after 15th May the following vessels arrived from possibly infected ports.

(1) British brig Joshua King, from Cardenas, arrived at Tybee in distress, 16th June, at the city, 19th June, and sailed 22d July.

(2) Spanish bark Nueva Ygnacia, sailed from Matanzas 1st July, arrived at Tybee 6th, at the city 13th July, sailed for Spain 2d August.

(3) Spanish brig Yñez, sailed from Havana 9th July, arrived at Tybee 13th, at city 16th July, sailed for Spain 28th July.

(4) Spanish bark Maria, sailed from Havana 9th July, arrived at Tybee 14th, at city 17th July, sailed for Spain 3d August.

(5) Spanish brig Pepe, sailed from Havana 15th July, arrived at Tybee 26th July, at city 2d August, sailed for Spain 9th August.

The next arrival was that of the Spanish brig Maria Carlina, at Tybee 2d, and at the city 16th August, having sailed from Havana 22d July.

As she went no further up stream than the Atlantic and Gulf wharves, as the fever was then in both wings of the town, and as there is no reason to even suspect any person on board as a bearer of the fever, she may be left out of the inquiry. For similar chronological reasons, all later vessels may be neglected.

The Joshua King discharged and reshipped her cargo in the western part of the town, and all connected with her were well on the voyage hither, and while in the city, which they left 22d of July.

We are thus reduced to the four Spanish vessels named to find the direct importer. All of these came in ballast, and brought no goods, except the personal effects of the seamen. The Spanish sailors never sleep on shipboard in this port, at least in summer, but proceed at once to a lodging-house, conveying to it their own bedding. They take their meals on their own vessels. The following tables embrace all the facts belonging to this port on the subject.[1]

Vessel.	Time in port.		Wharf.	Discharged.	
				Ballast, tons.	Beddings, mattresses, and blankets, each.
Nueva Ygnacia	13th July–2d Aug.	20 days	Cent. R.R.	100	11
Yñez . . .	16th–28th July	12 days	A. & G.	50	8
Maria . . .	17th July–2d Aug.	16 days	A. & G.	140	11
Pepe . . .	2d–9th Aug.	7 days	Cent. R.R.	50	6
Extremes . .	13th July–9th Aug.	27 days	. . . . .	340	36 pkgs.

Vessels.		Disposition of person.	
	Mrs. Redgate's.	Mr. Ruez.	Mr. Ybañes.
Nueva Ygnacia . . .	13 sailors	Captain and mate	
Yñez	7 sailors	Captain and mate	
Maria	10 sailors	Mate	Captain.
Pepe	7 sailors	Captain, mate, and one passenger	
Total 4	37 sailors	8	1

It is established by the consul's records that all the persons who arrived on these vessels departed on them in good health, and not one of them was seriously sick while in Savannah. This has been carefully traced out, which the small number of houses involved made quite practicable.

---

[1] The Georgia State Board of Health asserts that two of these crews lodged in the western part of the town. This is an error.

The Spaniards, then, were certainly not agents, in the sense that the diseased would be, in the propagation of the distemper.

Whether the bedding is equally free from blame cannot so certainly be established. Thirty-six (36) mattresses and blankets were carried from the wharves to Mrs. Redgate's, and again from Mrs. Redgate's to the wharves. If the passage of this bedding through the streets was capable of spreading the disease, it is as likely to have occurred in one place as in another. But the foci were isolated and well defined. Evidence as to the condition of this bedding differs, but I believe the facts are that the sailor's bedding is commonly dirty, if not foul. I have no means of learning whether the bedding had been in Cuba or elsewhere contaminated with the yellow fever poison.

The thirty-six packages represent the ordinary bedding of so many men. This when transferred is habitually strapped in bundles, or encased in bags, and I am told that it is never carried loose. If, however, this bedding was an agent in its introduction, the disease should have early shown itself in that house to which it was all carried and where it was in nightly use. But we find that the first case of yellow fever at Mrs. Redgate's, being Mrs. Redgate herself, occurred 30th of August, when the area of general infection from the Wright Street centre, distant about 285 yards northeast, was sufficiently advanced to embrace it. I can find no evidence that this bedding infected the localities through which it was transported, nor, indeed, the very house in which it was all concentrated, and I, therefore, throw out the Spanish bedding as an infecting agent.

The mere presence of the Spanish sailors has, however, been set forth as sufficient to account for the disease. The devious strolling of these men has been assumed as a sufficient cause not only for the scattered situation of the earlier cases, but for the presence of the disease itself. If these men were the actual bearers of infection, if each or any of them was known, or were likely to be ill with yellow fever, it might, without violence, be assumed that they did thus introduce and sow it broadcast. But it has already been shown that they all arrived well, remained free from the yellow fever while in port, and sailed in good health. To my mind the fact that these men had, two weeks or more previously, been in Cuba establishes nothing, either logically or presumptively, as to the causation of the epidemic.

The Maria Carlina reached the city August 16th, and discharged ballast at the Atlantic and Gulf Wharf. She is believed to have had no yellow fever on board. (She had, nevertheless, been detained at quarantine on suspicion, on account of the death of one man, already referred to.[1])

---

[1] On account of the suspicion attending the sudden death of the sailor on this vessel, although apparently from cholera morbus, the health officer declined to accept

One of her crew was sick while at quarantine, but not, in the opinion of the health officer, with yellow fever. That this opinion was correct, the fact that the same man, Santos Basquino by name, was admitted to the Marine Hospital, October 9, with yellow fever, is reasonable evidence.[1] But even on the assumption of her infection, the date of her arrival relieves her from the imputation of originating the Savannah epidemic.

In the prosecution of this study, I have written to the American consul-general at Havana, to both the captain of the port and the director of health at the same place, and to the last-mentioned officials at Mantanzas, making minute inquiries concerning the vessels involved. From the letters of these persons it appears that the only information that can be obtained as to the vessels inquired for is, that they left Havana "having perfect health on board; and it is not likely that any had yellow fever on board before their departure."

So far as personal importation is concerned it seems established that there is no evidence that the yellow fever poison was introduced from abroad.

But there is another question, especially connected with the Spanish shipping, that requires to be studied. This is the possibility of what may be called the indirect importation of the disease through ballast from Cuba.

In the Savannah *Medical Journal* for May, 1858 (i. p. 1). the late Dr. R. D. Arnold reports two cases of yellow fever treated the preceding February, in seamen of the British brig Cecilia in ballast from St. Thomas. Dr. Arnold explained the origin of the disease on shipboard, by presuming that it was generated by the exposure of the freshly-disturbed earth to the air of the semi-tropical climate through which it was carried, the presence of the crew bringing the vessel into the relation of a town.

If the simple disturbance of the sand from an uninhabited shore will generate the fever poison, the explanation is a possible one. But why is it not a matter of common record for yellow fever to occur on the various vessels arriving in American ports with West Indian ballast, if clean ballast is a frequent or even an occasional cause? A more serious objection to accepting this explanation in the case of the Cecilia, is our ignorance as to the previous history of both the ship and the crew.

---

what might be termed the interested testimony of those on shipboard, and compelled her to perform quarantine. Her detention covered two weeks, and appears to have been rigidly enforced. No communication being permitted further than once to supply her with stores, which was done by placing the stores in a boat floated at a distance from the vessel by a line, and then drawn in. In this instance there was no direct communication.

[1] In the report of the Georgia State Board of Health for 1876, p. 119, it is stated that Mr. Angus McAlpin had been informed that her captain died on shore in Havana of yellow fever; that the mate had been sick in the Havana Marine Hospital, but had gone to Spain, that the captain arriving with her had been put in charge in Havana, and that the baggage of the first captain still remained on board.

The importation of a large amount of ballast from Cuba has been looked upon as a probable cause of the epidemic under review, and as such requires investigation. A little of the ballast in question was first brought to the Atlantic and Gulf Railroad wharves in 1873, but the bulk of what is now there was deposited in 1874–76. Between 1st of January and 15th of August, 1876, about 1200 tons were brought to that place, of which not more than 190 tons arrived after 1st of June. This material comes in irregular rocky masses, readily disintegrating under the weather, and crumbling under pressure. It is largely argillaceous, has a greasy feel, a grayish-green colour, absorbs water readily, and, under an excess of it, breaks down. It is a natural compound of blue clay and a common serpentine.

Mr. W. J. Land, of Atlanta, reports its specific gravity at 2.315, the nitrogenous constituents at 0.192 per cent., and the water expelled at a red heat 7.582. The mineral appears to be an impure brucite, or a hydromagnesite (hydrate of magnesia) associated with the serpentine, many specimens showing variable quantities of the protoxide of iron. For a determination of these points I am indebted to my friend, Captain James C. Post, of the Corps of Engineers.

This ballast makes an excellent roadway, and to this use it has been chiefly put at these wharves. Some, but a smaller amount, has been deposited at the Central Railroad wharves.

It has been a matter of extreme difficulty to learn the exact source whence this ballast was taken, but through the kindness of my friend, Mr. Gorgorza, of this city, I obtained from the masters of Spanish vessels sailing from Havana these points, which I believe to be substantially correct. The ballast is brought from a locality southwest of Regla, and about two miles from the harbour. At that place are low ("little") hills which are dry, and in no way subject to drainage from human habitations, of which there are few in that neighbourhood, the nearest being a fourth of a mile distant. The ballast is dug from these hills, and is carried from the quarries to the ships, by which it is bought as needed. Regla, the nearest town, is thought to be healthier than Havana, and in summer many families move to the neighbourhood of the hills from that city. This is entirely confirmed by Dr. Belot, who says: "The gray ballast referred to is a native rock taken from the side of a hill in West Regla, about forty feet above the level of the sea," and that it does not contain any débris or organic matter whatever. That excellent authority further says: "I do not believe that the fresh ballast referred to will, of itself, in any way influence the development of yellow fever. If such were the case, the disease would manifest itself as soon as the ballast is taken in."

The affirmative argument may be thus stated:—

The case of the Cecilia, if accepted as complete as narrated, affords a precedent that ballast alone may generate, or emit, the disease-cause. The absorptive power of this ballast permits it to receive and retain moisture, and, presumably, poisonous matters. If it is impregnated with the fever-poison, that may remain dormant until exposed to favourable conditions for its development. By exposure before shipment, and on shipboard in the harbour of Havana, it may have been so charged. The Atlantic and Gulf Wharves, at mid-summer, afford favourable conditions for the development and propagation of dormant germs. The earliest known case of yellow fever had spent some days in the immediate presence of this ballast. The next two cases had been actually digging in and playing with this ballast, not long before they were taken sick.

The negative argument is:—

That the history of the Cecilia is fatally defective; that no other known cases of fever on shipboard have occurred that might not be explained in other and more plausible ways; that the presence of this ballast at Savannah in several preceding years has not caused the disease; that four of the first five Spanish vessels arriving in the summer of 1876, although carrying this ballast, had no cases of fever on board while at sea (the fifth Spaniard was also in ballast, but from Porto Rico, and had no sickness); that it is not known that the first case, Schull, was specially exposed to the influence of the ballast; that no cases occurred among the labourers handling it;[1] that none of the workmen or frequenters of those wharves, with the exceptions given, are suspected of having the disease until after the epidemic influence had invaded their homes or their resorts in the city; that although the Cleary party dug for shells and curious stones, this ballast is destitute of marine objects, and is a homogeneous mass, dirty and pasty when exposed to the weather, and that it is neither certain nor probable that these boys distinguished, in their testimony or in fact, between Cuban and other ballast, of which there is a vast amount; that these two boys were also exposed to other potent causes of disease; that of two other independent cases, one had no special exposure to and the other had never seen the ballast in question; that no cases are known or supposed to have originated at the Central R. R. Wharf, where similar ballast, although less in amount, has been thrown; that while the disturbance of soil in the hot season of warm climates is apt to provoke disease, the relations of this soil in Savannah were different from those of native earth, and that the clay of which it is largely composed is as well known as a neutralizer as it is as a generator of disease; that it has never been suspected by those carrying it or most familiar with it of being mischievous; that the best native authority believes it to be entirely inert; and that the known source of the ballast on *à priori* grounds leads away from the opinion of its danger.

In view of the conditions just cited, I believe that the probabilities are against the Cuban ballast playing any important part in the causation of the epidemic, and that the view of its indirect importation may be dismissed.

---

[1] Dr. O. A. White (*New York Medical Journal*, March, 1877) asserts that the only white labourer who handled the ballast died in consequence. Very careful inquiry has failed to discover such a case.

It is proper to notice here the statement (*Public Health Papers*, No. 1, Georgia State Board of Health, 1876, p. 11) that a member of the Board of Health had learned that a foreign tropical plant had been discovered in 1876, in a part of the city to which some of the Cuban ballast had been carried, and that the discoverer was convinced of its importation in that ballast. The deduction was made that this incident strengthened the chain of circumstantial evidence in favour of the importation of the disease. Before this appeared in print I had heard the same rumour, and had called on Dr. Feay, the botanist in question. He distinctly informed me that it was not unusual to find foreign plants in localities where they could only be accounted for by their introduction in the ballast or cargo of sea-going vessels; that these sometimes throve and sometimes died out as the climate might determine; but that he had not, in 1876, noticed any plant that he had not seen here before.

Before entirely dismissing the consideration of the Spanish element, it is proper to note that two of the four Spaniards that were detained at quarantine, the Nueva Ygnacia and the Pepe, discharged ballast at the Central R. R. Wharves; and that Lawrence Kelly, who discharged the Pepe on the 1st, was taken sick 11th August, as he now believes, with yellow fever. I do not think that the course of the disease will sustain that opinion. Rejecting this case, we then find that while 50 tons of the ballast in question was discharged by the Pepe, and 100 tons of an unknown variety, presumably from Porto Rico, between 13th July and 2d August, and that these two vessels laid close to the wharves to the 2d and 9th August, respectively, the first death from yellow fever among the employés there, was 12th September, and that only two white men in all died of that disease. No early cases there are known; and Mr. Morgan, the wharf master, assures me that while he, and probably others, boarded the Pepe, and were fully exposed to any infection that might have existed, they entirely escaped. In fact the exemption of those wharves was remarkable.

In connection with the Central Wharves, it has been said that the American schooner W. F. Cushing, which loaded there, clearing 24th August, carried a case of yellow fever into New York. Dr. S. O. Vanderpoel, the Health Officer of the Port of New York, informs me that the Cushing reached New York 4th September, all hands well, and that she received pratique. Six days afterward the city authorities notified him that Mark Hall, a sailor, had been taken from the schooner with yellow fever. Dr. Vanderpoel doubted the diagnosis, and subsequent inquiry showed that the man had shipped just as the vessel sailed, and that he had been in a malarious district. From the symptoms and convalescence, Dr. Vanderpoel thinks the case was not yellow fever, but of a malarial type.

The question, Was it of local origin? may be better discussed as—How did it arise?

Of the first known case, unfortunately, we have very little history anterior to the seizure. J. W. Schull, of Delaware, æt. 27, was the steward of the American schooner F. A. Server, which arrived with ice from the north 11th July, unloaded at the ice-wharf, near the foot of Barnard Street, and then dropped down to track No. 6, Atlantic and Gulf Wharves, where she loaded with lumber; she lay there from 18th to 29th July, when she sailed. It has been asserted that the Server and the Maria lay adjoining, and that Schull contracted the disease from the latter vessel. There is no reason to suppose that the Maria was contaminated; but, be that as it may, she lay from July 16th to August 3d, at track No. 10, four hundred feet down stream, with at least six vessels intervening during much of the time.

The Yñez, which presumptively was equally free with the Maria, however, did lie at track No. 5, 100 feet above the Server, all the time the latter was at her wharf. It is reported that Schull had the habit of boarding the Yñez and of consorting intimately with her cook, for the sake of cigars. Schull slept on his vessel. The Server was under a coasting license, so that she could not have gone to the West Indies, and Schull had been aboard of her for fourteen (14) months, thus demonstrating that he contracted the disease at this port, and probably near where his craft was lying. At this time we know nothing more about Schull or as to what particular localities he was in the habit of frequenting.

The next known, and probably the next actual case, as already noted, is that of Thomas Cleary, æt. 15, taken 6th August. Cleary states positively, and corroborates his statement under oath, that he and his companions were in the habit of frequenting the Atlantic and Gulf wharves, and of digging in the ballast deposits there for shells and curious stones. He also, with equal positiveness, asserts that they never were on board of the Spanish vessels. I examined Thomas Cleary, and also James McCarty, 1st February, 1877. Carefully avoiding leading questions, I found that, besides the foregoing facts, which they closely adhered to, they were in the habit, also, of frequenting the Bilbo Canal from the Thunderbolt crossing to the river, fishing in it and raking things out of it, but that they did not enter its waters. This both of the boys stated clearly and positively, and they asserted that almost every day in the summer, before they became sick, they were thus fishing and playing.

On the afternoon of August 15th occurred the case of Richard Grandison, a healthy mulatto of seven or eight years, living on Randolph St. near Liberty. I have carefully examined the history of this case, and find that there was no suspicious sickness in the neighbourhood; the child was habitually kept at home or in that immediate vicinity; he daily attended a small private school a few houses distant; no one belonging to the house or to the neighbourhood, as far as known, had any connection or association with the Atlantic and Gulf wharves, and no trace direct, or indirect, of connection with other sickness can be discovered. It appears, however, that the special amusement and recreation of this child was to take a pet dog to bathe in the water of the Bilbo Canal, or, more generally, in that of an open drain running into it, at the Thunderbolt crossing. This drain runs across the depot lands of the Atlantic and Gulf Company, and near its head, about 200 yards distant, was a large privy, used by the employés. By these foul waters this child toward evening was accustomed to play, and although it does not appear that he entered them himself, it was his habit to wash his dog there.

The next case that can be traced in the Grandison neighbourhood is that of Abram Mendel, at the junction of Thundebolt Road with Liberty and Randolph Sts., on the night of 26th August, after which the disease spread rapidly.

On 18th August the child of Martha Hart, æt. 8, Reynolds St., two doors north of Broughton, nearly in rear of the McCartys, had black vomit, but recovered. While it was convalescing the mother moved to the east side of Arnold St., two doors south of Broughton, where she died of yellow fever 30th August, so that no particulars as to the child's habits can now be obtained, but it is probable that this was one of the earlier results of the infection about Wright St., and that it sickened about the same time as Grandison.

The residence of John Conners, who was attacked 19th August, is about 400 yards southwest of Wright St., with no intervening cases. This boy was in the daily habit of playing in the deserted brick-fields on the Thunderbolt Road, and also at the Atlantic and Gulf wharves, and his route between the two places was along the railroad track on the bank of the Bilbo Canal. He positively denies boarding any vessel, digging in the ballast or elsewhere on the shore, bathing in the river or other stream, or fishing or otherwise playing in the Bilbo canal. He knows Tom Cleary and his companions, but did not play with them. I could find no avenue by which the infection might have been conveyed to him from the Wright St. or any other centre.

James Patrick Cleary, who died 21st August, after an illness dating from 17th, and whose case first opened the eyes of the profession to the presence of the disease, was a boy of twelve years. He suffered with chronic suppuration in the left hip, so that he never went far from home, certainly not to the Atlantic and Gulf wharves, and his death evidently merely happened to be the first of many in that vicinity from local, soon developing into general, infection.

Up to this case, and excluding that of the Hart child, we have, in the eastern part of the town, five distinct cases, viz., Schull, Thos. Cleary, McCarty, Grandison, and Conners, none of which have been nor appear capable of being traced to pre-existing yellow fever. For very ignorance of his habits we must omit Schull from the analysis, but in view of the general facts established as to the Spanish shipping and sailors it seems only reasonable to relieve them from the charge of infecting him. Nor does it appear that he influenced, directly or otherwise, the eastern epidemic. He was carried to the other part of the town soon after he was taken ill, and his vessel sailed on the fourth day following. Enough is known of the Server later to make it almost certain no other cases occurred on her or by her influence. The four remaining cases are all healthy children in whom the only common condition recognizable was their exposure to the effluvia from the Bilbo Canal. It is unnecessary to rehearse the condition of that avenue of filth under the midsummer sun. That it might induce disease is quite probable, and that it was the essential element in the combination giving rise to yellow fever is certainly possible.

While, as stated at the outset, I began this investigation with the expectation of tracing the epidemic to an imported source, I have been led step by step, contrary to my anticipations, to this conclusion, in favour of which there could hardly have been a better arrangement of conditions than these victims presented. Cleary and McCarty dug in the ballast and perhaps bathed in the Savannah. The other two did neither, but Conners frequented that locality as well as the other on the Thunderbolt Road. Grandison, although more exposed by his residence than Conners to the malaria, was not as much within its influence as scores of children living still nearer the eastern nether-lands, and neither he nor the boys from "the Fort" visited the deserted brickyards. The three white boys must have been near the rice-fields, especially about the time of the harvest flow, but the coloured boy was not; and while they did not enter the Bilbo water, he frequently washed his dog there and probably dabbled in it. He was not exposed to its emanations over a long course, but the others, one of whom asserts that he did not meddle with it, passed daily up and down the embankment, and two of them frequently troubled its waters. These exposures unite in this central, and as I now believe, vital fact. And it is an interesting circumstance, that may merely be a coincidence, but which I now look upon as something more, that a prominent citizen of Savannah, whose opinion, I believe, is that the disease was probably imported, although fully exposed by his self-sacrificing labours to the force of the epidemic, dates his own severe attack from a personal investigation into the state of the Bilbo Canal undertaken as a public duty. And, further, I have been struck with the fact that all the white and some of the coloured engine men employed on the Atlantic and Gulf switch engine (from the main track to the wharves, following the bank of this canal), suffered in like manner. The influence of this stream of sewage seems the keystone uniting these initiatory cases into an arch that may support the theory of local generation.

The most serious objection that has been raised, is the assertion that the Bilbo Canal did not materially differ in its condition from that of previous years, and the circumstance that many other persons than those named were equally or more exposed to its influence without thereby suffering. As already explained, testimony does not agree upon the relative state of the canal, but I believe the decided weight of evidence is in favour of its increased contamination. The sewers were only in full operation since the winter of 1872–3; the summers of 1873, 1874, and 1875 are the only ones with which 1876 could be compared; in the very nature of the case each of the early years of such a system finds a greater excrementitial discharge than its predecessor, and the channel of the canal would become more and more polluted and morbific. But it is not disputed that the canal was scarcely touched in 1876; if then its treatment did not differ from that of preceding years, this last was only the climax, and by that increment it then reached a state sufficient to breed disease. And, in addition, there was the yet unanalyzed but fully recognized meteorological condition wherein 1876 differed to the sensation from its antecedent fellows. The state of the canal required this other necessary element to precipitate the explosion.

The point that many others were subjected to the same influences without suffering in the same manner, carries on its face authority. This can only be met by the equally true counter-statement that not all those who are exposed to the same poison manifest equally its effects. Some passed unscathed through the whole epidemic. It is manifest that the most susceptible are the most easily overcome by the disease forces, but wherein the susceptibility lies we do not yet know.

There are, however, arguments, or more correctly assertions, not clearly set forth in print, which some use in verbal controversy much in this form: "We know that there was yellow fever in Cuba; we know that shipping from Cuba was in port when the first cases of yellow fever occurred in Savannah; we know that such ship-masters cannot be depended upon in statements that they may make as to the condition of their crews and vessels; we do not believe that yellow fever can originate in this country; we do not believe that yellow fever can occur except as propagated by the special yellow fever poison; no one knows much about the laws of epidemics or the diffusion of disease; we cannot tell why, when it is present, this poison seizes scattered cases first, but we believe such to be the case; the histories that you mention are probably real, but you cannot prove that the Bilbo canal will produce yellow fever; we do not believe it had anything to do with it; this epidemic influence is a very mysterious agency whose methods we know little or nothing about, but it must have come from the Spanish shipping, because yellow fever is an exotic disease, and cannot have a spontaneous or domestic origin."

In substance, this is constantly urged as a valid objection to the views expressed, and as it may have a weight that I do not appreciate, and be something other than reasoning in a circle around an assumed centre, I incorporate it for consideration.

About the time that the disease attracted popular attention by its progress in the eastern streets, its presence in the western part of the town was shown by the deaths of Mrs. Mary E. Malcomes in Stone Street, and W. M. Thompson in Indian Lane, 28th and 29th August, and by other synchronous cases. Their occurrence so soon after the recognition of the disease in Wright Street, together with the special virulence of the Stone Street outbreak, led some to the opinion that this was a centre for the spontaneous generation of the disease, and others to believe that the poison overleaping the city from "the Fort," either by an unexplained atmospheric freak, or by being directly borne on the persons of visitors and passers-by, had by chance alighted and developed there. But we are now able to trace with tolerable accuracy its progress in the west according to the usual habit of infectious epidemics. To this we must revert to the case of Schull, 25th July.

In the latter part of that day, this man being ill with yellow fever on board his schooner at the Atlantic and Gulf wharves, his captain hailed a small boat in charge of a son of Mrs. Hearn, the keeper of a sailor's boarding-house, and had him carried in it to that place. Mrs. Hearn's house is on the northwest corner of Indian Street and a short unnamed thoroughfare, thirty feet wide, that would be Ann Street continued, and is so marked, for convenience, on the map. Schull's subsequent career has been already described.

On 11th August a case of fever occurred on Joachim Street nearly opposite the head of Ann Street, of which the Board of Health states (p. 113): "There are grounds for thinking this was a case of yellow fever." I do not concur in this view, but whatever its nature, it probably was not derived from the Schull case. On the opposite corner of Ann Street, and thirty feet distant from Mrs. Hearn's, was the grocery of Thomas Magner, and there, on the 17th August, a child, Thomas Magner, Jr., was taken ill. From the concurrent testimony of numerous witnesses, he was sick in the same manner as the rest of the family who were attacked as he convalesced, and three of whom died of undoubted yellow fever.

David Coleman, Mrs. Hearn's son-in-law, took Schull in a carriage to the hospital, and occupied his room and bedding after his departure.

On 16th he went to Darien, Ga. While there he had a fever for four hours, on the 18th; on the 19th he returned and had a chill, followed by vomiting, which was succeeded by fever. He says the fever was continuous, without intermission or remission until seen by Dr. Duncan. Dr. Duncan diagnosed the case as remittent fever, but very recently he authorized me to say that, in view of the circumstantial evidence, he is willing to admit that it may have been yellow fever. Coleman remained in the infected locality all the time and was not again ill.[1] The probabilities are in favour of the specific nature of his disease. But in view of the numerous adjacent cases this is not a necessary link. Coleman had not been exposed on the eastern part of the city. The route by which he took Schull to the hospital is here noted, in order that any possible influence of that progress may be studied. It was up Indian Street to West Broad, to St. Julian, to Montgomery, to Congress, to Jefferson, to York, to Drayton, to Taylor. The carriage was a closed hack from John Feely's stable (adjoining the Pulaski House), and it did not stop *en route*. An unsuccessful attempt has been made to trace its next use. It was not of a kind used for pleasure driving, and probably did not go out until it had been disinfected by the natural ventilation of rest.

August 22d, five days after the first Magner case, Mr. Hatch, æt. 60, living at Mrs. Whelan's, two doors in rear of Magner, on Ann Street, was attacked with yellow fever and recovered. He was a night watchman in a shop directly in rear of Mrs. Hearn's and just opposite Mrs. Whelan's, and is believed to have had no exposure apart from his residence.

On the same day John T. Fallon, a lad of 15½ years, was attacked. The house that he lived in was a few doors from Hearn's and Magner's, diagonally across the street. He had never been on the eastern side of the city, and there is no explanation beyond that of residence to offer. He recovered.

Also on the same day, 22d, W. M. Thompson, living on the north side of Indian Lane, a very narrow and crowded street, parallel with and south of Indian Street, about midway between West Broad and Farm Streets, was attacked with yellow fever and died 29th.

August 24th, a child of Mrs. Flynn, living next Magner's, on Indian Street, was attacked, but recovered. After that date the cases in that region were too numerous to be detailed.

Meantime a German shop girl, employed at a bakery, corner of Margaret and West Broad Streets, had walked to "the Fort" to see a friend (not sick) on the afternoon of 28th. She had a headache that evening; was unable to work the next day; was seen 22d by a physician, who then believed she had a severe attack of the fever of the climate, but now thinks it was yellow fever. She had no subsequent attack.

Again, on the night of 20th, the six-year old child of a well-known citizen was attacked at sea on the Philadelphia steamship that had sailed that morning. She was desperately ill with unquestionable yellow fever, but recovered. The family residence is on the west side of Jefferson Street, the second door south of Perry, and the child, rarely from home, had not visited any disease-cause as far as known.

---

[1] [March 26. Coleman informs us to-day that his infant child was very ill between the time of Schull's leaving the house and her own attack, and from what they saw later the family now think it had yellow fever. The doctor does not recollect any particulars of the child's case. It recovered.]

Herman Cohen, living in Perry Street, the second or third door east of West Broad, south side, was seen 26th August with advanced yellow fever. He had been ill several days, his physician supposes from about 20th or 21st. He was a butcher by trade, but his exposure cannot now be traced. He died 2d September.

In the night of 23d August, an elderly lady, living at the southwest corner of Perry and Montgomery Streets, was attacked, and nine cases followed rapidly in the same house.

On the 24th, R. B., æt. 11 years, second door west of the last named, was attacked. He was the first of eight children, all of whom took the disease within the next five days, and all recovered. A large number of cases followed in that immediate vicinity.

On the afternoon of 24th, Mrs. Malcomes, previously referred to, living on the north side of Stone Street, in the only house between Montgomery and West Broad, was attacked. Her death on the afternoon of the 28th was the first fatal result in that part of the town, and attracted particular attention to an onset whose special virulence there made it known as the Stone Street outbreak. A number of other cases, with two more deaths, followed rapidly in the same house.

The next day a case occurred in the neighbouring house, northwest corner of Stone and Montgomery Streets, followed by one on 26th, and a number more very soon. In the night of 25th, Mrs. Scherer, living in Harris Street, two doors east of West Broad, just south of the Malcomes, and on 26th her husband, were attacked. They both died 31st. Reference to the map will show how these cases were clustered about a common nucleus.

On the 26th a mulatto youth, living in Orange Street, five doors east of Farm, developed the first case in that region; he worked in a blacksmith shop, on the north side of Liberty Street, one door east of West Broad, that is, not many yards from the Stone Street focus.

At the same time that Mrs. Malcomes was ill, her brother, Joseph Thomas, an engine-man on the Georgia Central Railroad, was under treatment in the same house for fever. He had been attacked at the end of his run in Macon 23d August, returned home the morning of 25th (after Mrs. Malcomes's seizure) and was sufficiently well to leave the city, 30th. This has by some been classed among the yellow fever cases, but I think unjustly, and likewise it can have nothing to do with the causation of Mrs. Malcomes's illness, as has been suggested.

By the time the medical profession was thoroughly aroused, and the people at large began to realize its presence, the disease had obtained secure footing at several points on both flanks; and the epidemic influence was so prevalent that after the 28th cases began to occur irregularly throughout the city, so that a further detailed record of its progress is both impracticable and useless.

The progress of the disease in the West, as already sketched, is not as clearly traceable, step by step, as one would desire. But the following summary will assist its comprehension:—

There was, first, the illness of Schull, the sailor, 25th–28th July, establishing a nucleus on the corner of Indian and Ann Streets, and from its development was the outbreak whose first traced manifestation (unless we include the Coleman child) was the case of the Magner child, 17th August. Other cases speedily followed that of Magner. By the night of 20th persons residing at Margaret and West Broad and at Jefferson near Perry had acquired the disease. These are 500 and 900 yards, respectively, distant from Mrs. Hearn's, and it is not clear why the poison from that centre should not be manifested over such an interval. The sickness of the German girl at the bakery I have been entirely unable to trace directly to any infecting source.

Those who believe the mere presence of healthy persons, who have been in polluted regions, sufficient to account for epidemics (as charged against the Spanish sailors) should be satisfied with the explanation that the Perry and Montgomery Streets explosion depended upon the residence of the Inspector of Dry Culture at the southeast corner of these streets, if they admit that there were local causes in the dry culture lands adequate to originate the disease. But the inspector's family did not manifest the disease until several days after their neighbours on the opposite corner, and they were evidently the infected, not infecting parties.

A sufficient explanation for the conspicuous Stone Street outbreak has, however, been revealed in the illness of the Catholic priest in charge of St. Patrick's parish. This clergyman informs me that he was taken suddenly ill on the afternoon of 13th August, and his description of his symptoms tallies exactly with that of severe yellow fever up to, but not reaching, the stage of black vomit. He further says that his physician assured him, after his recovery, that that was his disease; and, from his observation of others, he has no doubt such was the case. Other cases followed in the same house, dating from 26th August. Now St. Patrick's Church extends along West Broad Street from Liberty to Stone, the priest's house being at the Stone Street end, which brings it in direct proximity to the Malcomes house, and establishes an adequate cause for the local epidemic. That it is also sufficient to account for the cases in the neighbourhood of Perry and Jefferson Streets, occurring between 20th and 24th, is not so evident. The chronological sequence of those and the Stone Street cases generally would lead us to suppose that at least the disease did not spread from Stone Street to Perry Street, but the reverse. But now, finding an immediate cause for the Malcomes and the associated cases, we are left without one for the others just mentioned. The two hypotheses open are (1) that from St. Patrick's the air was generally infected, and the cases showed themselves within a radius of 200 yards; or (2) that the Perry Street cases depended for their origin upon some yet undetected and probably recovered case in that vicinity. I incline to the latter view.

But while thus accounting for the Stone Street cases—and it is proper to say that, before I learned of this initial case, her husband under my advice carefully traced out the possibilities for Mrs. Malcomes to contract the disease elsewhere, and utterly failed to find a clue—their actual origin is simply removed one step backward, and we cannot account for the primary case. The parochial duties of this clergyman (Rev. E. Cafferty) were confined to the western part of the town. He was not required to go, and has no recollection that he went, into the region of "the Fort." He was not called to the Atlantic and Gulf wharves. He had no connection with the Spanish ships or seamen. Indian Street was in his parish, but nothing took him into the Hearn or Magner houses. He occasionally drove out on the Thunderbolt Road, but there was no special exposure to the Bilbo Canal. And, in fine, I have entirely failed to associate him with any possible foreign or any probable domestic source. As will be presently shown, he resided in a region adapted to the spread of the disease, but it has not hitherto been suspected of causing it.

St. Patrick's Church is a low, broad structure with the floor near the ground, with no basement, and with no appropriate interior ventilation. Father Cafferty informs me that, in the summer, there was a perceptible ill-conditioned odour permeating that edifice. The attached priest's house is about two feet above the level of the street, with no cellar. It is a one-story brick building, and is in the summer exceedingly hot and dusty. The priest's sleeping-room is in the southwest angle of the house (and block), and there is a water-closet across the hallway, nearer the centre of the house and a few yards distant. This on the occasion of my visit (27th March) gave the characteristic odour with some emphasis, and I was informed that there was generally a taint from it in the air. The room is an interior one, and has no ventilation except through the door and by movable sashes in the upper part of the partition into a reception-room directly opposite the priest's room. The apartment also contains a bath. I found the plumber who fitted up the room. Reference to his books shows that the work was done Nov. 22, 1869; and he tells me that an old well in the backyard, near the wall of the house and not far from the church, was used to receive the waste water and soil discharges. It is manifestly impossible to keep the interior of the dwelling perfectly sweet, especially in the summer, with the present arrangements; and the locality of the well furnishes abundant opportunity for direct soil and indirect air pollution. The servants use the privy in the corner of the yard nearest the Malcomes house; the drinking water is obtained from the same well that the Malcomes used in Montgomery Street. The most unsanitary agent, and the constant one to which Father Cafferty was exposed, was within the sultry atmosphere under his own roof; and although again and still further leading me from my preconceived notions, the possibility of a fresh instance of spontaneous generation seems, with my present light, the most reasonable solution.

There are two isolated cases, which at first sight give colour to the theory of the general malarial or at least the spontaneous origin of the disease. Attention is invited to them as apparent exceptions that prove the rule of the epidemic's course.

The first was the case of Lydia Williams, a white woman of the poorer class, aged about 40 years, who lived on the south side of William Street, the first door from Farm. She was attacked in the night of Sunday, 13th Aug., and died on the morning of Wednesday, 16th. Her body was extremely yellow; she had typical black vomit; and the *post-mortem* decomposition progressed rapidly. Her physician, Dr. Charters, did not regard this as other than a severe remittent at the time, but he now classes it as a case of true yellow fever, in which I coincide. The disease did not spread in that region until the infection became general. This woman had been more or less sick for several weeks with an ordinary malarial attack. She was very poor; and it was her habit to carry a basket through the city, visiting her acquaintances in all parts of it, and accepting such gifts as they might bestow. I have found that, a few days before her attack, she had made a visit to a Mrs. Wuller, living in Bay Lane, two doors from East Broad Street, about 100 yards from the Cleary house. Where else she may have gone I cannot trace, but she may have been all through "the Fort" region, as well as have visited the Indian Street focus.

The other is the attack in the night of 22d August of a young man, Mr. T. W., living at the northwest corner of Lincoln and St. Julian Streets, which at that time was much outside the range of the epidemic. His physician, who saw him first on the morning of 23d, did not then regard the case as yellow fever, but he afterwards looked upon it as having been such from the beginning, and I have no reason to dissent from that view. Mr. W. was employed at the lower cotton-press, between Lamar's Creek and Lamar's Canal, but, except that he had landed 31st July at the Atlantic and Gulf wharves from a Philadelphia steamer, he had not been east of his place of business for many weeks. He certainly had not frequented the Spanish shipping, the Bilbo Canal, nor had he any known communication with yellow-fever patients or houses. It was his custom to drive up the hill between the gas-works and the river, and thence along Bay to Lincoln Street. It is improbable that such exposure along the extremity of East Broad Street could have been mischievous. He usually walked down, and sometimes took a route through Reynolds Street, and over an open slope, not clearly delineated in the map, that brought him out by Lamar's Canal. It is quite possible that that exposure to the infection, which is now known to have been abundant in that vicinity, was the exciting cause.

We may now inquire why the disease appears to have been peculiarly violent at the Wright St. and Stone St. foci. Wright St. is a cul de sac, running out of East Broad St., closed at its eastern end. East Boundary, a narrow street in which McCarty lived, is in the same block, also a cul de sac, at right angles to Wright St. The neighbourhood, which has long been inhabited, may be described as a collection of small dwellings, chiefly wooden, tenanted by ordinary labourers, mostly Irish, crowded together, with small yards in the rear, and provided with common privies that are simply walled holes in the ground. Now, however clean the individual houses might be kept—and the Cleary house, for instance, is not to be found fault with—the atmosphere was necessarily poisoned by the effluvia from the dense population, the rapidly decaying organic matter under the July sun, and, especially, from the numerous open sinks. Although a large sewer runs down East Broad St., there are no connections with it from these houses, and the primitive cess-pools, crowded within narrow limits, must have filled both the soil and the air with their emanations. Without knowing what the infection of yellow fever demands as pabulum, we may imagine that it will thrive on such a compound when the thermometer averages more than 80° F. for the twenty-four hours for weeks together.

Stone St. is also a cul de sac in the eastern portion, but the part between West Broad and Montgomery Sts. has only the Malcomes house facing on it. The northeast corner of Stone and West Broad is occupied by the priest's house of St. Patrick's. Between Harris and Stone Sts., the lots are so shallow that the houses facing on Harris St., as they all do, present all their privies in a row on the southern side of Stone St., which is only fifty feet wide. The privy of the Malcomes house is in the yard at the rear, and, when examined in January, was found to be literally full, although the house is vacant. The house on the northwest corner of Stone and Montgomery Sts. faces Montgomery St. In Stone St., by the side of this house, was a dry well that was opened at least twice in the summer, the last time early in August.

From all of these causes the air was tainted to the senses, in both of the localities described, before the outbreak of the epidemic.

In both the Wright St. and Stone St. neighbourhoods, and also in Indian St., the water commonly drank was from the street pumps. The sink in Mrs. Hearn's yard is reported as being always dry, which simply means that the liquids drained off. Whither? The Board of Health reports (*loc. cit.* p. li.) the sample of water from the well used by the Malcomes family, to yield on evaporation 50.96 grains solid residue, against 0.42 grain from a sample of Savannah hydrant (river) water. The quantity yielding these results is not stated in the report, but I learn from the analyst that the United States wine gallon is the standard to which the proportion is referred. The well water is also described by the chemist as "quite brackish" from the presence of chloride of sodium. Now while chloride of sodium itself is not injurious, its presence in these wells suggests that the proximity of the sinks may supply other more objectionable ingredients. The sample is spoken of as taken from the well on West Broad St. The Malcomes actually used a pump on Montgomery St. near Harris, which I think is that from which this specimen was taken. The nearest pump on West Broad St. is below Liberty St.

The Montgomery and Perry St. quarter also presents many open sinks and few sewer connections.

The Indian St. region, or Yamacraw, is also crowded and beyond the line of sewers, and presents similar but not equal unsanitary conditions to those just described.

I invite attention to this group of facts—the pollution of the soil and air by human excreta in those regions where the disease made its most savage and deadly onsets—as complementary to the conditions under which this paper supposes it to arise. And the circumstance that Schull did not propagate the disease at the Marine Hospital, bears negative but confirmatory testimony in the same direction—for that institution is airy and well ventilated, it is in good police, and it has proper sewer connections.

As bearing directly upon the influence of animal and especially fecal effluvia, may be cited here another early case, which, indeed, some look upon as of spontaneous origin. On Thursday, 24th August, E. L. D., æt. 10, residing at 154 State St., north side, between Whitaker and Barnard Sts., became seriously ill. Was first seen by Dr. McFarland on the evening of 25th.

There was epistaxis, and a black, or more strictly brown, vomit set in before death, which occurred in the night of 28th. Four deaths from marked yellow fever followed in rapid succession in the same family. This child was an active boy who, out of school hours, played vigorously with his companions. His wanderings cannot now be traced, although the natural drift of his associations would carry him into the Perry and Montgomery St. quarter.

Now although the open plaza of St. James Square is but a few yards to the southwest, State Street is only forty feet wide, and directly opposite the lad's home, which faced south, is an ancient, large, wooden building looking west. This was in poor repair, and was tenanted by several families, embracing a large number of people. The rear of that lot, and of the complementary lot facing Whitaker Street, coincide, and one vault receives the privy contents of both lots. Further, the dwellers in several small houses on State Street near Whitaker, looking north, use the same vault. The practical consequence of so many persons using substantially a common privy was that the place was so offensive that the dwellers on the north side of State Street frequently could not, with comfort, use the front of their houses in summer evenings. There was no water-closet in the house when the sickness occurred, but twelve persons used a common privy, not connected with the sewers, in the rear of the small yard.

Without claiming this as a spontaneous case, it is evident that the soil and water contamination intensified the attack. Many other cases shortly followed in the same block, and in the wooden hive opposite.

From the foregoing and similar unreported facts, I believe that a careful topographical survey of the field of the epidemic would show the points of greatest sickness and those of the most offensive privy arrangements to closely coincide.

On the other hand, the county jail, which is situated in the southern part of the city, enjoyed entire exemption from yellow fever. Private residences approach the jail on three sides, and in some of these the fever occurred.

The jail is badly arranged, the cells lack both light and ventilation, are not easily cleaned, and are likely to be damp. The jailor, Mr. Russel, used lime and sawdust freely in the corridors and upon the stone floors of the cells, compelled the prisoners to bathe the entire body daily, and to exercise in the corridors, and fed them upon soups instead of solid food. There is a privy seat in each cell communicating with a large iron pipe that runs through each tier. These pipes were flushed from a tank overhead a number of times daily, and the contents run off into the city sewers. From the nature of this arrangement it is probable that fresh fecal smells were abundantly offensive, but nothing was allowed to remain for decomposition, and there was no soil pollution. The prisoners' drinking water was taken from a pump in the park grounds, apparently free from contamination. The officials and servants used a vault in another part of the grounds, and drank filtered hydrant water. The most of these people were of the class who might be supposed to yield the soonest to morbific influences, and the chief difference between them and their unconfined equals was their enforced regular habits, and their freedom from the effects of soil pollution.

An equally remarkable exemption was enjoyed by the Abrams Home, the residence of thirty-two respectable widows of various ages from fifty-five to ninety-five years. This is situated at the northwest corner of Broughton and East Broad Streets, and by its locality was early exposed to the force of the epidemic influence. In the testimony of Dr. L. A. Falligant, appended to the report of the Board of Health (pp. xxix.–xxx.) a sickness of the matron, whom he saw August 16. *et seq.*, is attributed to yellow fever. But besides and beyond it there were no other fever cases there (except one ephemeral febrile attack) during the epidemic season. The building is of stuccoed brick. Each room has an open fireplace. The yard in the rear is large and well kept. In the building there is one and in the yard there are two water-closets (not vault or common privies) connecting with the sewers. Hydrant water is in the yard, but is not used for culinary or drinking purposes. Such water is obtained from a pump on the east side of East Broad Street. It is to be remembered that East Broad Street is one of the paved streets, and that this pump is therefore less likely than many others to be contaminated by immediate soakage. After the fever was recognized in the city, no change was made in the diet of the inmates, the doors were closed at dark, lime was freely spread in the yard, carbolic acid was freely poured on the hearth in each room, and constant fumigations of rags and sugar burned together were kept up in the halls. I judge that general cleanliness was carefully preserved. As from the age of the inmates it might be supposed that all or the most of them had previously had yellow fever, or were otherwise acclimated, I have specially inquired into these particulars, and find as follows: Nine (9) had yellow fever in previous years; eight (8) had never before been exposed to it; and the remainder, fifteen (15) in number, although previously exposed, had heretofore escaped. The exemption in this case appears attributed to, or at the least is coincident with, the freedom from local soil pollution, and in a less degree freedom from water pollution.

From the data which I have been able to collect, I think it is clear: First, that there is no evidence of importation of the yellow fever poison in this epidemic. Second, that if it was imported, no system of quarantine could have guarded against it. Third, that the spread and virulence of the epidemic were closely connected with air and soil pollution, whether this pollution be considered as a sufficient explanation of the origin of the disease or not.

The following table, prepared, and in part extracted, from the carefully-arranged statistics, by Dr. William Duncan, shows the mortality in Savannah during the presence of the epidemic, arranged by months:—

	Mortality in 1876 from					
	Yellow fever.			All diseases.		
	White.	Colored.	Total.	White.	Colored.	Total.
August	35	2	37	86	77	163
September	483	66	549	549	203	752
October.	212	52	264	266	161	427
November	41	5	46	73	58	131
Aggregate for 4 months . .	771	125	896	974	499	1473
Mortality from yellow fever in 1876				771	125	896
Mortality from other causes in 1876				494	859	1353
Total mortality in 1876				1265	984	2249

ARTICLE II.

THE ANTIPYRETIC TREATMENT OF PNEUMONIA. By SAMUEL E. JAMES, M.D., of Frankfort, Ky.

THE treatment of febrile affections by agents capable of reducing the temperature of the body has of late attracted considerable attention, and, in order to test their efficiency, the writer has subjected quite a number of patients suffering with pneumonia to their influence; chief among these agents are the cold bath, quinia, and salicylic acid; and the results recorded in this paper will deal with observations made on patients on whom the effect of these remedies was carefully watched. The patients were inmates of the Kentucky Penitentiary, which contains an average of about 850 convicts, and for these there are but 648 cells, containing each about 170 cubic feet of air, which will at once be recognized as quite insufficient for one man; yet, from the necessities of the case, a number of these small cells have to accommodate two men. Each man is allowed two buckets, one for water and the other for his discharges during the night; and the atmosphere, already poisoned with carbonic acid gas and animal matter exhaled by the two men, is still further charged with the stench arising from the buckets containing the fecal matter.

The majority of these convicts are compelled to lie in some county jail several months before being consigned to the penitentiary, and, as a natural result, are in a debilitated and enfeebled condition when they enter this institution. When these facts are duly considered, it is no wonder that pneumonia assumes such a malignant type, as has been already described in the pages of this Journal by Dr. W. B. Rodman (see No. for January, 1876, page 76).

In these cases the fever is the most formidable enemy to meet, and cold we have found to be our most efficacious remedy. The cold bath is very much lauded by the Germans, and their praise is not without foundation; but the exhaustion consequent upon moving the patient from the bed to the bath and back again, which is very marked in those of feeble constitutions, is an objection not easily set aside. A tablespoonful of some stimulant should be administered just before and after, and, if necessary, during each bath, to avoid collapse. The patient should be kept in the bath ten or fifteen minutes, or longer if necessary.

Quinia is next in the list of antipyretics, and as an adjuvant to the cold-bath is indispensable. It has the property of reducing the temperature without injury to the heart, and can be given in large doses without evil effects. It should be given in 30 grain doses at intervals of twenty-four hours to get its antipyretic effect. The diet should be liberal: finely scraped meat, bread and butter, eggs, and plenty of milk. Insomnia or any complication tending to weaken the heart should be promptly treated.

The following cases will show the value of the cold bath as an antipyretic. The bath was administered only when the temperature reached or exceeded 103½° ; and the quinia was only given at night to influence the temperature when the baths were not administered.

Case I. Grayson (coloured), æt. 35, admitted May 24. Had pain in right side and constant desire to cough. Previous night had a chill, followed by fever. On admission, pulse 116, full and moderately strong; temperature 103°, and respiration 50, with dyspnœa; tongue coated, and distressing nausea. Temperature remained 103° the rest of that day, while the pulse decreased 8 beats.

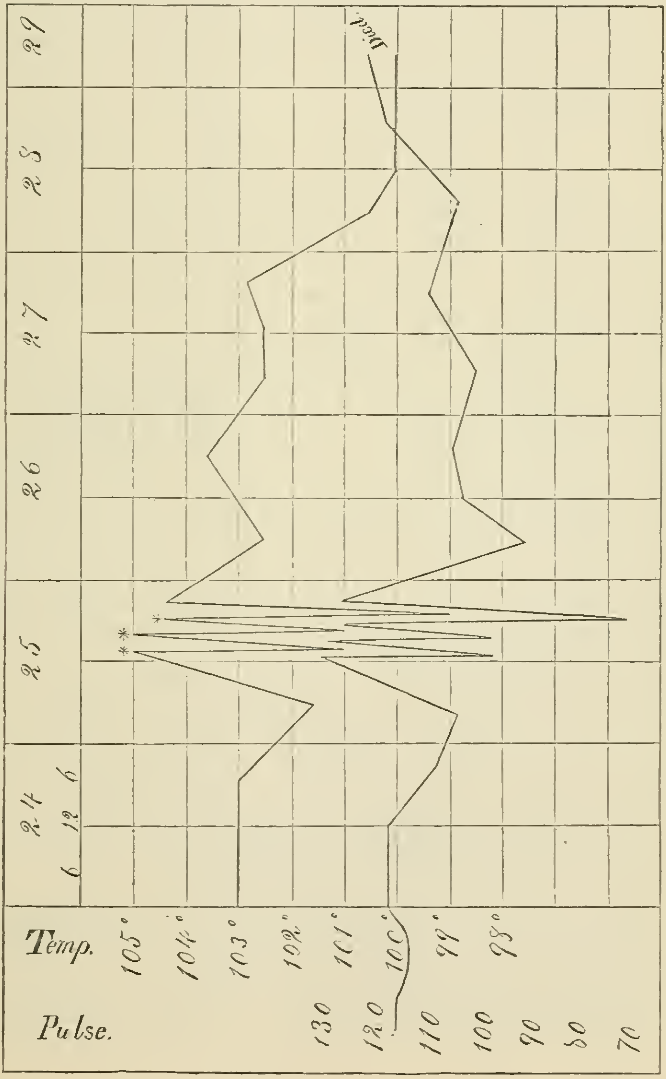


Diagram No. 1.

The * indicates the time at which the bath was given.

25th, crepitant râle over middle lobe of right lung; temperature 101½°; pulse 104, respiration 50. Seems to be improving, but at noon temperature was 104°, pulse 130, and respiration 60. Bath 65° F. given, reducing temperature from 105° to 101½°. The bath was repeated at 2 P. M., reducing temperature from 105° to 100½°; and again at 5 P. M. temperature reduced by bath from 101½° to 99°; and at night 30 grs. quinia given. The following diagram illustrates the effect of the baths on the pulse and temperature.

26th. Temperature 102½°, pulse 92, and respiration 28. Dulness over middle and lower lobes of right lung. Crepitant râle in lower lobe of right and upper lobe of left lung. Sputa rusty and tenacious, containing fibrinous casts of the smaller bronchi. Cough very painful, for which morphia was given. At noon, temperature 103°, pulse 100, and respiration 32. At 6 P. M., temperature was ½° higher, pulse 104, and respiration 36. Blowing respiration and bronchophony in middle lobe of right lung. 30 grains quinia given at night.

27th. Temperature 102½°; pulse 100; respiration 36. Sputa much darkened in colour; contains but little mucine. At noon, temperature 102½°; pulse 104; respiration 38. Pulse feeble and compressible. 6 P. M., temperature 102¾°, pulse 108, and respiration 40. Dulness in both lungs continued. 30 grains of quinia given at night.

28th. Temperature 100½°. Cough still troublesome, for which gr. 1/6 morphia was given. Patient being weak, stimulants were ordered, but were of little avail. Bronchophony and bronchial breathing in lower lobe of right lung and upper lobe of left.

29th. Much worse. Pulse 120 and very feeble; respiration hurried, with occasional gasps. Friction sound developed in right pleura. Sputa thin and of a dirty-greenish colour. At noon patient very weak; pulse 130, and respiration interrupted. At 1 P. M. death took place.

The *post-mortem* corroborated the physical signs. Middle lobe of right lung in a state of gray hepatization, cut surface showing grayish-yellow colour, and slight pressure caused pus to escape.

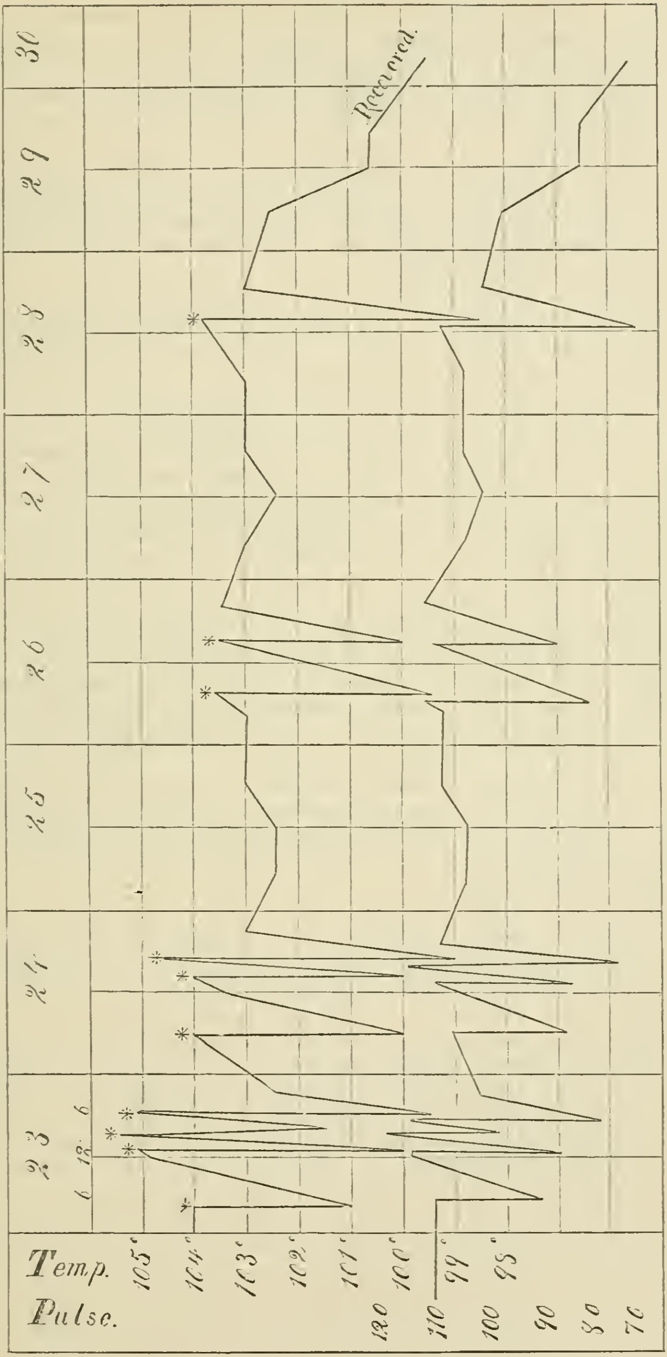
Lower lobe of right lung hepatized and very firm. Cut surface had a distinct granular appearance and bloody serous fluid escaped. Upper lobe of left lung in second stage. The remaining portions of both lungs were intensely congested. The right lung was adherent to adjacent chest wall. Slight effusion in pleural sac. Liver and kidneys congested. Spleen congested and slightly enlarged.

CASE II. Butterson (mulatto), æt. 25, strong, well-nourished man, admitted May 23d. Temperature 104°; pulse 102; respiration 42. Had been engaged in manufacturing hemp, and on going to his cell was seized with a chill. Crepitant râle indistinctly heard. Bath (68° F.) given, which reduced the temperature to 101°. Noon, temperature 105°, bath reduced it to 100°. 5 P. M., temperature 105½°, reduced by bath to 101½°; temperature soon reached 105° again, when it was again reduced by a bath. 30 grains of quinia given at night.

24th. At 9 A. M. bath given, reducing temperature from 104° to 100°. 3 P. M. bath given, reducing temperature from 104° to 100°, and at 5 P. M. from 101½° to 99°. 6 P. M. temperature 103°, pulse 100, and respiration 40. 30 grains quinia given at night.

25th. Temperature 102½°, pulse 104, respiration 39. Temperature not exceeding 103°, no baths were given, but the following day two were

Diagram No. 2.



The * indicates the time at which the bath was given.

necessary. Tongue flabby, coated, and indented on the edges. Dulness with bronchophony and bronchial breathing in lower lobe of right lung.

27th. Temperature did not exceed 103°.

28th. Noon, temperature reduced from 103½° to 98½° by bath.

Diagram No. 2 (page 57) shows the effect of the baths on the temperature and pulse.

Case III. Robertson, æt. 30. Admitted with dry cough, pain in side, sputa streaked with blood; temp. 103°, pulse 86, and resp. 38; stomach irritable and unable to retain food or medicine, he was accordingly fed and medicated through the rectum; this medication consisting of 30 grs. of quinia each night of attack.

Diagram No. 3 (page 59) shows the result of the treatment.

Case IV. Tyler, æt. 28. The following is the record of the temperature, pulse, and baths:—

May 22d. 6 A. M., temp. 103°, pulse 104. 12 M., temp. 103°, pulse 108. 2 P. M., bath given, reducing the temperature from 104¾° to 100¼°, pulse from 114 to 83. 6 P. M., temp. 104½°, pulse 117.

23d. 6 A. M., temp. 104½°, pulse 117. At 9 o'clock a bath was given, reducing temp. from 104¾° to 99¾°, pulse from 119 to 82. At 11 A. M. another bath was given, and temperature reduced from 105° to 100°; pulse from 120 to 82. 12 M., temp. 101¾°, pulse 98. At 2 P. M., the temperature had risen to 105°, but was declining, and at 6 P. M. was 103°, while the pulse was 110.

24th. 6 A. M., temp. 102°, pulse 100. 10 A. M. a bath was given, reducing the temperature from 103½° to 98½°; pulse from 110 to 70. 12 M., temp. 103½°, pulse 108. 6 P. M., temp. 102½°, pulse 100.

25th, 6 A. M., temp. 101°, pulse 88. 12 M., temp. 103¼°, pulse 112. 2 P. M., temp. reduced by a bath from 104° to 99°, pulse from 114 to 74. 6 P. M., the temperature had risen to 104°, but was declining; pulse to 112.

26th, 6 A. M. Temp. 102½°. pulse 100½. 12 M., temp. 103¾°, pulse 112. 2 P. M., a bath was given, reducing the temperature from 104° to 101°; pulse from 113 to 93. Another bath was given at 4 P. M., reducing the temperature from 105° to 100½°, pulse from 114 to 88. 6 P. M., temp. 104°, pulse 108.

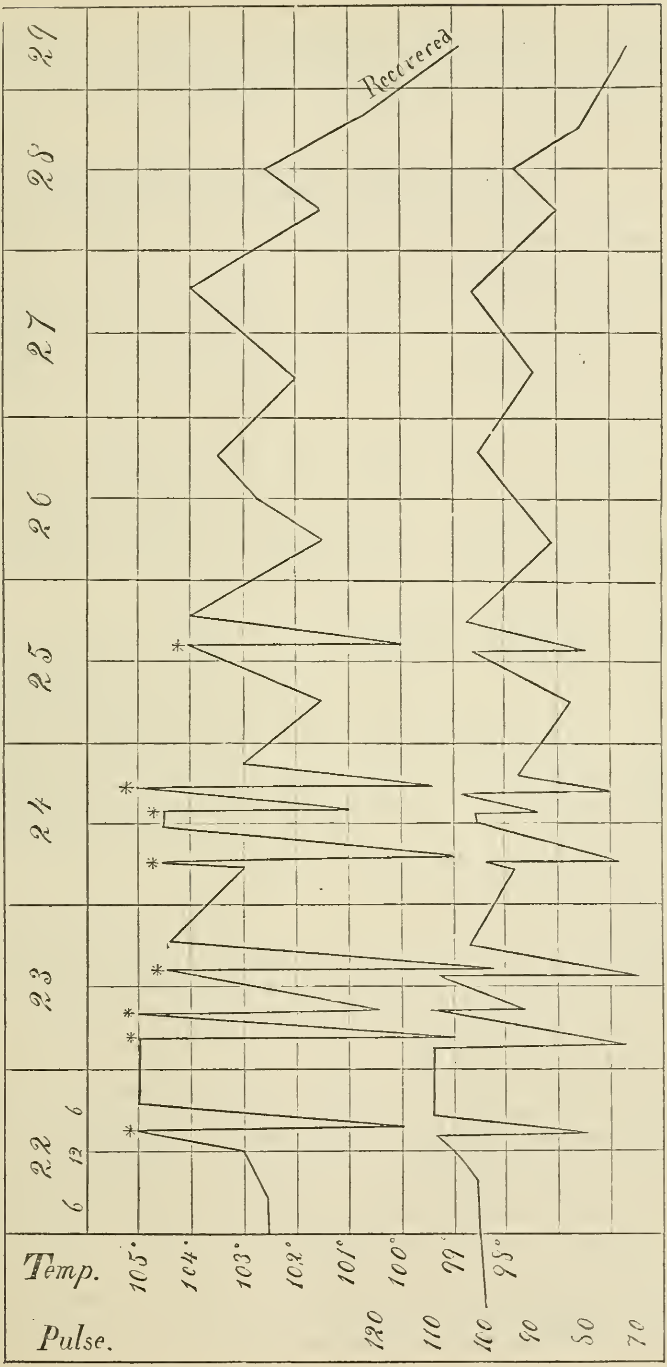
27th, 6 A. M. Temp. 102½°, pulse 112. 12 M., temp. 102½°, pulse 112. 6 P. M., temp. 102½°, pulse 110.

28th, 6 A. M. Temp. 100½°, pulse 83. 12 M., temp. 100½°, pulse 82. 6 P. M., temp. 99¾°, pulse 77. The patient continued to convalesce from this time.

Case V. Skinner, æt. 24. Record of temperature, pulse, and baths:—

July 8, 6 A. M. Temp. 106°; pulse 140. 8 A. M., a bath was given, reducing the temperature from 107° to 101°; pulse from 147 to 88. 10 A. M., another bath was given, reducing the temperature from 107° to 101½°; pulse from 147 to 94. 11 A. M., a bath was given, reducing the temperature from 106½° to 101°; pulse from 143 to 90. 12 M., temp. 107½°; pulse 147. A bath was given, which reduced the temperature to 100°, and pulse to 80. 2 P. M., a bath was given, reducing the temperature from 107° to 100°; pulse from 141 to 78. 4 P. M., another bath was given, reducing the temperature from 106¾° to 99¾°; pulse from 136 to 80; but at 5 P. M. his temperature reached 107½°, when he died. *Post-mortem* examination revealed middle lobe of right lung in second stage, while the remainder of the lung was intensely congested.

Diagram No. 3.



The * indicates the time at which the bath was given.

This patient was in an unconscious condition when admitted, and had evidently been suffering with pneumonia several days. When the temperature was reduced by the bath, consciousness returned, but the bad symptoms reappeared when the temperature had reached its height again.

CASE VI. Divine (coloured), æt. 27. The physical signs were well marked in this case, but the pulse was exceedingly infrequent. When temperature was 103°, pulse was 52, and when 105° only 80; and again, when temperature was normal, pulse was only 48. Record of temperature, pulse, and baths:—

June 1, 6 A. M. Temp. 104½°; pulse 84. 10 A. M., a bath was given, reducing the temperature from 104¾° to 100°; pulse from 85 to 70. 12 M., temp. 103¾°; pulse 85. 1 P. M., the temperature was reduced by a bath from 105° to 99°; pulse from 88 to 68. 4 P. M., the temperature was reduced from 104½° to 99½°; pulse from 90 to 72. 6 P. M., temp. 104½°; pulse 75.

2d, 6 A. M. Temp. 104°; pulse 56. 11 A. M., bath given, reducing temperature from 104½° to 98½°; pulse from 60 to 48. 12 M., temp. 100½°; pulse 64. 4 P. M., bath given, and temperature reduced from 104° to 99°; pulse from 68 to 50. 6 P. M., temp. 104°; pulse 58.

3d, 6 A. M. Temp. 103°; pulse 56. 11 A. M., bath given, reducing temperature from 104° to 98½°; pulse from 62 to 48. 12 M., temp. 100°; pulse 53. 6 P. M., temp. 104°; pulse 58.

4th, 6 A. M. Temp. 102½°; pulse 57. 12 M., temp. 103°; pulse 67. 6 P. M., temp. 103°; pulse 72.

5th, 6 A. M. Temp. 103°; pulse 72. 12 M., temp. 104¾°; pulse 76. 2 P. M., bath given, reducing temperature from 105° to 101½°; pulse from 77 to 57. Another bath at 4 P. M. reduced the temperature from 105° to 101¼°; pulse from 76 to 55. 6 P. M., temp. 104°; pulse 68.

6th, 6 A. M. Temp. 103°; pulse 64. 9 A. M., bath given, reducing temperature from 104° to 100°; pulse from 68 to 53. 12 M., temp. 102½°; pulse 66. 2 P. M., temperature reduced by a bath from 104½° to 99°; pulse from 72 to 51. 6 P. M., temp. 100½°; pulse 60. From this time the patient continued to convalesce.

In the remainder of the cases the record of the pulse has been omitted.

CASE VII. Calahan, æt. 45. Record of temperature and baths:—

April 16, 6 A. M. Temp. 105°. 10 A. M., bath given, reducing the temperature from 105¼° to 100°. 12 M., temp. 103½°. 1 P. M., temperature reduced from 104½° to 99°; and again at 4 P. M. from 104° to 99½°. 6 P. M., temp. 103½°.

17th, 6 A. M. Temp. 99½°. 12 M., 99½°. 6 P. M., 100°.

18th, 6 A. M. Temp. 102°. 11.30, bath given, reducing the temperature from 104° to 98¾°. 12 M., temp. 99°. 6 P. M., temp. 101°.

19th, 6 A. M. Temp. 102°. 12 M., 101°. 6 P. M., 101°.

20th, 6 A. M. Temp. 101½°. 12 M., 101½°. 6 P. M., 102°.

21st, 6 A. M. Temp. 103°. 11 A. M., a bath was given, reducing the temperature from 103½° to 99°. 12 M., temp. 100½°. 4 P. M., another bath was given, reducing temperature from 103½° to 100°. 6 P. M., temp. was 103°.

22d, 6 A. M. Temp. 101°. At 11 o'clock that morning the patient's temperature was 103½° when he died.

CASE VIII. Boswell, æt. 23. The baths seemed to have but little effect on the temperature at first, requiring fifteen minutes to reduce it one degree. The second bath was but little more effective, but the third was very successful. Record of temperature and baths:—

April 27, 6 A. M. Temp. 103°. 12 M., 103½°. 6 P. M., 104°.

28*th*, 6 A. M. Temp. 102½°. 12 M., 104°, but on the decline. 6 P. M., 103°.

29*th*, 6 A. M. 102°. 12 M., 103°. 6 P. M., 103°.

30*th*, 6 A. M. 101½°. 12 M., 103°. 6 P. M., 102°.

May 1, 6 A. M. 100°. 12 M., 101°. 6 P. M., 103°.

2d, 6 A. M. Temp. 104½°. 9 A. M., a bath was given, reducing the temperature from 105° to 104°. At 11.30 another was given, reducing it from 105° to 102½°. 12 M., temp. 103¼°. 3 P. M., bath was again given, reducing the temperature from 105½° to 100°. 6 P. M., temp. was 100½°.

3*d*, 6 A. M. Temp. 100½°. 12 M., 101½°. 6 P. M., 101½°.

The next morning the temperature was 98½°, and the patient entered upon convalescence.

CASE IX. Bennell, æt. 35. Record of temperature and baths:—

May 4, 6 A. M. Temp. 103½°; 12 M. 104°, and 6 P. M. 104°.

5*th*, 6 A. M. Temp. 104°. 9 A. M., a bath was given, reducing the temperature from 105° to 100°. 12 M. Temp. 103°. 2 P. M., a bath was given, which reduced the temperature from 104½° to 100°; and another at 4 P. M., reducing it again from 105° to 100°. 6 P. M. temp. 103½°.

6*th*, 6 A. M. Temp. 100½°. 12 M., 102½°, and 6 P. M., 103°.

7*th*, 6 A. M. Temp. 102½°. 12 M., 102°, and 6 P. M. 102½°.

8*th*, 6 A. M. Temp. 100°. 12 M., 100°, and 6 P. M. 99°. Convalescence then began.

CASE X. Cooke, æt. 28. Record of temperature and baths:—

April 2, 6 A. M. Temp. 104°. 11 A. M., a bath was given, reducing the temperature from 105° to 100°. 12 M., temp. 102½°. 2 P. M., another bath was given, reducing the temperature from 104½° to 98½°. 6 P. M., temp. 102°.

3*d*, 6 A. M. Temp. 102°. 11 A. M., a bath was given, which reduced the temperature from 104½° to 99½°. 12 M., temp. 101¾°. 3 P. M., temp. was reduced by a bath from 104° to 99¼°. 6 P. M., temp. 103°.

4*th*, 6 A. M. Temp. 103½°. 11 A. M., bath given, reducing temperature from 104½° to 99°. 12 M., temp. 102°. 2 P. M., another bath given, reducing temperature from 104° to 99½°. 6 P. M., temp. 104°.

5*th*, 6 A. M. Temp. 102½°. 12 M., 103°, and 6 P. M., 103°.

6*th*, 6 A. M. Temp. 100½°. 12 M., 100°, and 6 P. M., 99½°, when convalescence commenced.

CASE XI. Richardson, æt. 30. Record of temperature and baths:—

April 4, 6 A. M. Temp. 103°. 9 A. M., a bath was given, reducing the temperature from 105° to 101°. 11 A. M., another was given, reducing the temperature from 106° to 99°. 12 M., temp. 102°. 2 P. M., a bath was given, which reduced the temperature from 105° to 99°. Another was given at 4 P. M., this time reducing the temperature from 104½° to 100°. 6 P. M., temp. was 104°.

5*th*, 6 A. M. Temp. 104½°. 9 A. M., a bath was given, reducing the temperature from 105° to 100°, and another at 11 A. M., reduced it from 104½° to 99°. 12 M., temp. 103¼°. 1 P. M., a bath was given, which reduced the temperature from 105° to 100°; another at 3 P. M. reduced it from 101½° to 100½°; and another at 5 P. M., from 104½° to 100°. 6 P. M., temp. 103½°.

6th, 6 A. M. Temp. 101°. 12 M., 101°, and 6 P. M., 103°.

7th, 6 A. M. Temp. 101°. 12 M., 100½°, and 6 P. M., 100°. From this time patient continued to convalesce.

When the second bath was given, the temperature being 106°, there was noticed a rise of 4° in the temperature of the water.

CASE XII. Ross, æt. 31. Record of temperature and baths:—

April 12th, 6 A. M. Temp. 103°. 12 M., 103½°. 2 P. M., a bath was given, reducing the temp. from 105° to 100°; and another at 5 P. M., which reduced it again from 105° to 100°. 6 P. M., temp. 103½°.

13th, 6 A. M. Temp. 103°. 9 A. M., a bath was given, reducing the temp. form 105° to 99½°; and another at 11 A. M., reducing it from 105° to 100°. 12 M., temp. 102½°. 2 P. M., a bath reduced the temp. from 105° to 100½°; and another at 5 P. M., from 105° to 100°. 6 P. M., temp. 103½°.

14th, 6 A. M. Temp. 103°. 12 M., 103°. 6 P. M., 103½°.

15th, 6 A. M. Temp. 103½°. 11 A. M., a bath was given, reducing the temperature from 104¼° to 100°. 12 M., temp. 100¾°. 6 P. M., 103½°.

16th, 6 A. M. Temp. 102½°. 11.30 A. M., a bath was given, reducing the temp. from 101½° to 99½°. 12 M., 99¾°. 6 P. M., 100½°.

17th, 6 A. M. Temp. 102°. 12 M., 101½°. 6 P. M., 101½°.

18th, 6 A. M. Temp. 102°. 12 M., 101½°. 6 P. M., 101½°.

The next morning the temperature was 100½°, and convalescence began, but was very tedious, this being his second attack in the month of April.

CASE XIII. McCloskey, æt. 43. Record of temperature and baths:—

June 1st, 6 A. M. Temp. 103°. 12 M., 103°. 6 P. M., 103½°.

2d, 6 A. M. Temp. 104°. 9 A. M., a bath was given, reducing the temp. from 104½° to 99°. 12 M., temp. 102½°. 2 P. M., another bath was given, which reduced the temp. from 105° to 100°. 6 P. M., temp. 103½°.

3d, 6 A. M. Temp. 102½°. 11 A. M., a bath was given, reducing the temp. from 101° to 99½°. 12 M., temp. 102°. 2 P. M., another bath was given, reducing the temp. from 104½° to 100°. 6 P. M., temp. 103½°.

4th, 6 A. M. Temp. 101°. 12 M., 102°. 6 P. M., 102°.

5th, 6 A. M. Temp. 100°. 12 M., 101½°. 6 P. M., 102°.

6th, 6 A. M. Temp. 100°. 12 M., 100°. 6 P. M., 99½°; when convalescence was established.

CASE XIV. Gordin, æt. 22. Record of temperature and baths:—

June 27th, 6 A. M. Temp. 103°. 10 A. M., a bath was given, reducing the temp. from 103¾° to 99½°. 12 M., temp. 101¾°. 6 P. M., 103°.

28th, 6 A. M. Temp. 101½°. 12 M., 100½°. 6 P. M., 100°.

29th, 6 A. M. Temp. 102°. 11 A. M., a bath was given, reducing the temp. from 101° to 99°. 12 M., temp. 100½°. 6 P. M., 103°.

30th, 6 A. M. Temp. 100°. 12 M., 100°. 6 P. M., 100°.

July 1st, 6 A. M. Temp. 100½°. 12 M., 101°. 6 P. M., 101°.

2d, 6 A. M. Temp. 100°. 12 M., 100½°. 6 P. M., 100½°.

3d, 6 A. M. Temp. 100½°. 12 M., 100°. 6 P. M., 100½°.

4th, 6 A. M. Temp. 100°. 12 M., 99½°. 6 P. M., 99½°. Patient then began to convalesce.

CASE XV. Beasley, æt. 38. Record of temperature and baths:—

July 6th, 6 A. M. Temp. 104°. 9 A. M., a bath was given, reducing the temp. from 104¼° to 101°. 12 M., temp. 104¼°. 2 P. M., another bath was given, which reduced the temp. from 105° to 100½°. 6 P. M., temp. was 103½°.

7th, 6 A. M. Temp. 104½°. 10 A. M., a bath was given, reducing the temp. from 105° to 101°. 12 M., temp. 103¼°. 2 P. M., another bath was given, which reduced the temp. from 104½° to 99½°. 6 P. M., temp. 104°.

8th, 6 A. M. Temp. 104°. 9 A. M., a bath was given, reducing the temp. from 104° to 100°. 12 M., temp. 102½°. 4 P. M., another bath was given, which reduced the temp. from 104½° to 99°. 6 P. M., temp. 103½°.

9th, 6 A. M. Temp. 103½°. 12 M., 103°. 6 P. M., 102½°.

10th, 6 A. M. Temp. 102°. 12 M., 101°. 6 P. M., 102½°.

11th, 6 A. M. Temp. 101½°. 12 M., 102°. 6 P. M., 100½°. The next morning the temp. was 100°, and the patient began to convalesce.

Case XVI. John Catt, æt. 40. Record of temperature and baths:—

March 20, 6 A. M. Temp. 104°. 10 A. M., a bath was given, reducing the temperature from 104¼° to 98½°. 12 M., temp. 101°. 3 P. M., nother bath was given, reducing the temperature from 103¾° to 98°. 6 P. M., temp. 101½°.

21st, 6 A. M. Temp. 102°. 12 M., 102°. 6 P. M., 101°.

22d, 6 A. M. Temp. 102°. 12 M., 103°. 6 P. M., 101½°.

23d, 6 A. M. Temp. 103°. 12 M., 103°. 6 P. M., 101½°.

24th, 6 A. M. Temp. 103°. 12 M., 102°. 6 P. M., 102°.

25th, 6 A. M. Temp. 102½°. 12 M., 103°. 6 P. M., 103°.

26th, 6 A. M. Temp. 101°. 12 M., 99½°. 6 P. M., 100°. The patient's temperature was 98½° the next morning, and convalescence began.

Case XVII. Hecks, æt. 34. Record of temperature and baths:—

May 6, 6 A. M. Temp. 104°. 10 A. M., a bath was given, reducing he temperature from 105° to 100°. 12 M., temp. 104°. 1 P. M., nother bath was given, reducing the temperature from 105° to 100½°; nd again at 4 P. M., reducing the temperature from 105° to 100°. 6 P. M., temperature was 105°.

7th, 6 A. M. Temp. 103°. 10 A. M., a bath was given, reducing the emperature from 105° to 100°. 12 M., temp. 103¾°. Two baths were given this afternoon, reducing the temperature each time from 105° to 00°. 6 P. M., temperature was 105°.

8th, 6 A. M. Temp. 104°. 9 A. M., a bath was given, reducing the emperature from 104° to 100°; and again at 11 A. M., reducing it from 05° to 99½°. 12 M., temperature was 100½°. 2 P. M., another bath was given, reducing the temperature from 104½° to 99°; and at 5 P. M. nother, reducing it from 105° to 100°. 6 P. M., temperature was 105°.

9th, 6 A. M. Temp. 102½°. 9 A. M., bath given, reducing temperature from 104° to 99½°. 12 M., temp. 103¼°. 2 P. M., bath given, educing temperature from 105° to 100°; and another at 5 P. M., reducing it from 104½ to 99°. 6 P. M., temperature was 104°.

10th, 6 A. M. Temp. 104°. 12 M., 102½°. 1 P. M., bath given, reducing temperature from 103½° to 98½°. 6 P. M., 104°.

11th, 6 A. M. Temp. 103½°. 12 M., 103°. 6 P. M., 103°.

12th, 6 A. M. Temp. 102½°. 12 M., 101°. 6 P. M., 101°.

13th, 6 A. M. Temp. 99½°. 12 M., 100½°. 6 P. M., 100½°.

14th, 6 A. M. Temp. 100½°. 12 M., 100½° 6 P. M., 99°, when onvalescence began.

It was very difficult to keep the temperature down in this case, as it would begin to rise as soon as the patient was taken from the bath. He experienced great relief from the use of the bath.

CASE XVIII. Roach, æt. 25. Record of temperature and baths:—

May 6. 6 A. M. Temp. 104°. 9 P. M., bath given, reducing the temperature from 104½° to 100°. 12 M., temp. 103¾°. 2 P. M., another bath given, reducing the temperature from 105° to 100°. 6 P. M., temperature was 105°.

7th. 6 A. M. Temp. 103°. 9 A. M., bath given, reducing temperature from 105° to 100°; and again at 11 A. M., reducing it from 105° to 101°. 12 M., temp. 103°. 2 P. M., bath given, reducing temperature from 105° to 99½°; and at 5 P. M. another, reducing it from 105° to 99°. 6 P. M., temp. 105°.

8th. 6 A. M. Temp. 104°. 11 A. M., bath given, reducing temperature from 103¾° to 98½°. 12 M., temp. 100¼°. 3 P. M., bath given, reducing temperature from 103½° to 98½°. 6 P. M., temp. 103°.

9th. 6 A. M. Temp. 104°. 11 A. M., bath given, reducing temperature from 103¼° to 99°. 12 M., temp. 101¾°. 2 P. M., another bath given, reducing the temperature from 103½° to 98½°. 6 P. M., temp. 103°.

10th. 6 A. M. Temp. 103°. 9 A. M., bath given, reducing the temperature from 103¼° to 98½°. 12 M., 102½°. 6 P. M., 102°.

11th. 6 A. M. Temp. 102½°. 12 M., 102°. 6 P. M., 102½°.

12th. 6 A. M. Temp. 103½°. 12 M., 103°. 6 P. M., 103°.

13th. 6 A. M. Temp. 103½°. 12 M., 103½°. 6 P. M., 103°.

14th. 6 A. M. Temp. 103°. 12 M., 102½°. 6 P. M., 103°.

15th. 6 A. M. Temp. 102°. 12 M., 102°. 6 P. M., 102½°.

16th. 6 A. M. Temp. 101°. 12 M., 100°. 6 P. M., convalescence had begun.

The following cases were treated with quinia and salicylic acid without the baths, the quinia being given in 30 grain doses morning and evening when this would suffice to keep the temperature down, but was sometimes given in larger doses. The salicylic acid proved a failure as an antipyretic, and was only occasionally and irregularly used.

The diet, as in the treatment of the preceding cases, consisted of beef-tea, bread and butter, milk and eggs.

CASE XIX. McCutcheon, æt. 29. Record of temperature:—

March 20. 6 A. M. Temp. 104°. 12 M., 101½°. 6 P. M., 102½°.

21st. 6 A. M. Temp. 101°. 12 M., 102°. 6 P. M., 102°.

22d. 6 A. M. Temp. 100°. 12 M., 102°. 6 P. M., 100°.

23d. 6 A. M. Temp. 100°. 12 M., 100°. 6 P. M., 101°.

24th. 6 A. M. Temp. 99°. 12 M., 99½°. 6 P. M., 100½°.

25th. 6 A. M. Temp. 100°. 12 M., 100°. 6 P. M., 101½°.

26th. 6 A. M. Temp. 100°. 12 M., 100°. 6 P. M., 101°. On the following morning the temperature was 99°, and convalescence had begun.

CASE XX. Coleman, æt. 15. Record of temperature:—

June 1. 6 A. M. Temp. 105½°. 12 M., 105¾°. 6 P. M., 104½°.

2d. 6 A. M. Temp. 104½°. 12 M., 105°. 6 P. M., 104½°.

3d. 6 A. M. Temp. 103½°. 12 M., 105°. 2 P. M., temperature was 105½°, when the patient died.

He was delirious when admitted, and remained so throughout the attack. The dose of quinia was increased, but failed to accomplish the reduction of the temperature. He could not swallow, and it was necessary to introduce the quinia into the rectum.

CASE XXI. Decker, æt. 27. Record of temperature:—
June 16, 6 A. M. Temp. 104°. 12 M., 104½°. 6 P. M., 105°.
17*th*, 6 A. M. Temp. 106°. 12 M., 104°. 6 P. M., 105°.
18*th*, 6 A. M. Temp. 103°. 12 M., 102½°. 6 P. M., 103°.
19*th*, 6 A. M. Temp. 101°. 12 M., 102½°. 6 P. M., 104½°.
20*th*, 6 A. M. Temp. 100°. 12 M., 99°. 6 P. M., 99½°.
21*st*, 6 A. M. Temp. 100°. 12 M., 101°. 6 P. M., 101°. The next morning the temperature was 100°, when convalescence began.

CASE XXII. Dykes, æt. 30. Record of temperature:—
June 22, 6 A. M. Temp. 104°. 12 M., 104½°. 6 P. M., 105°.
23*d*, 6 A. M. Temp. 102½°. 12 M., 103½°. 6 P. M., 103½°.
24*th*, 6 A. M. Temp. 101°. 12 M., 102¾°. 6 P. M., 104°.
25*th*, 6 A. M. Temp. 100°. 12 M., 100°. 6 P. M., 100½°.
26*th*, 6 A. M. Temp. 100½°. 12 M., 101½°. 6 P. M., 101½°.
27*th*, 6 A. M. Temp. 100°. 12 M., 103°. 6 P. M., 102°.
28*th*, 6 A. M. Temp. 100°. 12 M., 100½°. 6 P. M., 100½°. The following morning the temperature was 98½°, and convalescence going on.

CASE XXIII. Boyd, æt. 40. Record of temperature:—
July 1, 6 A. M. Temp. 103½°. 12 M., 104°. 6 P. M., 104°.
2*d*, 6 A. M. Temp. 101°. 12 M., 100°. 6 P. M., 100½°.
3*d*, 6 A. M. Temp. 100½°. 12 M., 101½°. 6 P. M., 102½°.
4*th*, 6 A. M. Temp. 100½°. 12 M., 100°. 6 P. M., 100°.
5*th*, 6 A. M. Temp. 100°. 12 M., 99½°. 6 P. M., 99½°.
6*th*, 6 A. M. Temp. 100°. 12 M., 100½°. 6 P. M., 99½°, at which time convalescence began.

CASE XXIV. Hurst, æt. 27. Record of temperature:—
July 8, 6 A. M. Temp. 104°. 12 M., 104½°. 6 P. M., 104½°.
9*th*, 6 A. M. Temp. 103°. 12 M., 104°. 6 P. M., 104°.
10*th*, 6 A. M. Temp. 98½°. 12 M., 99°. 6 P. M., 99°.
11*th*, 6 A. M. Temp. 101°. 12 M., 100½°. 6 P. M., 100½°.
12*th*, 6 A. M. Temp. 100°. 12 M., 101°. 6 P. M., 100½°.
13*th*, 6 A. M. Temp. 99½°. 12 M., 100°. 6 P. M., 99½°.
14*th*, 6 A. M. Temp. 100°. 12 M., 99½°. 6 P. M., 98½°, when convalescence was established. It will be seen that the temperature on the night of the 9th declined from 104° to 98½°. This was the result of the administration of 60 grains of quinia at a dose.

CASE XXV. Johnson, æt. 39. Record of temperature:—
July 9, 6 A. M. Temp. 104°. 12 M., 104½°. 6 P. M., 105.°
10*th*, 6 A. M. Temp. 101°. 12 M., 100°. 6 P. M., 102°.
11*th*, 6 A. M. Temp. 100½°. 12 M., 100°. 6 P. M., 100°.
12*th*, 6 A. M. Temp. 100½°. 12 M., 103°. 6 P. M., 102°.
13*th*, 6 A. M. Temp. 101°. 12 M., 101½°. 6 P. M., 101½°.
14*th*, 6 A. M. Temp. 100½°. 12 M., 101°. 6 P. M., 100°.
15*th*, 6 A. M. Temp. 99½°. 12 M., 99½°. 6 P. M., 100°. Temperature was down to 99° the following morning, and convalescence began.

CASE XXVI. Carniel, æt. 33. Record of temperature:—
August 16, 6 A. M. Temp. 104°. 12 M., 104½°. 6 P. M., 105°.
17*th*, 6 A. M. Temp. 102°. 12 M., 102½°. 6 P. M., 102°.
18*th*, 6 A. M. Temp. 103°. 12 M., 104½°. 6 P. M., 105°.

19th, 6 A. M. Temp. 101°. 12 M., 100½°. 6 P. M., 101½°.
20th, 6 A. M. Temp. 101°. 12 M., 102°. 6 P. M., 102°.
21st, 6 A. M. Temp. 101½°. 12 M., 101½°. 6 P. M., 102½°.
22d, 6 A. M. Temp. 100½°. 12 M., 101°. 6 P. M., 99½°. Convalescence began the next morning, with temperature 98½°.

Case XXVII. Williams, æt. 32. Record of temperature:—
August 10, 6 A. M. Temp. 102½°. 12 M., 102°. 6 P. M., 101°.
11th, 6 A. M. Temp. 102½°. 12 M., 103°. 6 P. M., 102½°.
12th, 6 A. M. Temp. 103½°. 12 M., 105½°. 6 P. M., 105½°.
13th, 6 A. M. Temp. 99½°. 12 M., 102°. 6 P. M., 105°.
14th, 6 A. M. Temp. 101½°. 12 M., 102°. 6 P. M., 102½°.
15th, 6 A. M. Temp. 102°. 12 M., 103°. 6 P. M., 102°.
16th, 6 A. M. Temp. 99½°. 12 M., 100°. 6 P. M., 100°.
17th, 6 A. M. Temp. 99½°, convalescence began.

Case XXVIII. Daniells, æt. 15. Record of temperature:—
August 15, 6 A. M. Temp. 105°. 12 M., 101°. 6 P. M., 105°.
16th, 6 A. M. Temp. 103°. 12 M., 103½°. 6 P. M., 101°.
17th, 6 A. M. Temp. 103°. 12 M., 101°. 6 P. M., 101½°.
18th, 6 A. M. Temp. 101°. 12 M., 101½°. 6 P. M., 105°. Patient died at 7 A. M. the following morning, temperature being 105°.

It will be seen that, of the 18 cases treated with the cold bath, only 3, or a little less than 17 per cent., died. Of these three cases, one was double pneumonia, another pneumonia of the apex with delirium, while the third was marked by high temperature.

Of the 10 cases treated with quinia, 2 died, giving the average hospital mortality. One of these was an old man, and the other had pneumonia of the apex. When it is remembered that these men live in a vitiated air, and have their spirits depressed by confinement in the penitentiary, the results of these modes of treatment must be regarded as quite favourable; but the sudden change of temperature from high to low degree, by the application of cold water, is certainly very inconvenient for the patient; and if he is suffering from exhaustion, as he is apt to be in the latter part of the attack, it may jeopardize his life to move him from his bed. It is evident that, if you apply cold to the body, it will reduce the temperature; but is not reaction equal to action? Will not the high temperature return when the agent that reduced it is removed?

The more rational treatment, it seems to me, would be to apply the cold in such a manner that reaction shall not occur at all.

Article III.

A Contribution to the Study of Inherited Syphilis of the Eye.

By Charles S. Bull, M.D., Surgeon to the New York Eye Infirmary and to Charity Hospital.

Under the head of "Inherited Syphilis," we include both intra-uterine manifestations of the disease, that is, true *congenital* syphilis, and also that hereditary syphilis which shows itself at a varying period after birth from infancy up to puberty. Though the syphilitic diathesis may have already produced. *in utero*, perfectly distinct external manifestations of its existence; yet, in the case of the eye, these are certainly not common. In the majority of cases, syphilitic infants are, at the time of birth, of healthy appearance, and the symptoms of constitutional syphilis do not usually make their appearance till some weeks later. Jonathan Hutchinson, in his book on "Syphilitic Diseases of the Eye and Ear, consequent on Inherited Syphilis," says that he has never yet seen an instance of *congenital* cataract in a syphilitic infant. and remarks: "This is quite what might be expected, for there is good reason to believe that the syphilitic taint does not usually cause intra-uterine disease." The main obstacle here has always been the difficulty of getting at any of the true facts of the case from the histories that are published. The cases are either not examined at all in regard to the various questionable points at issue, or else the examinations are made in a crude, slipshod. and unsatisfactory manner. To the natural difficulties of the subject must also be added the intentional or accidental deception on the part of the parents. But it seems to me that signs of intra-uterine disease of the eye are not so uncommon as is usually believed, even in syphilitic children carried to full term, and that if our methods of examination were more rigid, we should meet with them oftener. We know that in hereditary syphilis. the early development of deep visceral lesions is very marked, especially gummy growths, the beginning of which have been observed in an advanced stage of retrogressive metamorphosis in premature births of six months, and which must have commenced in the earliest months of fœtal life. In the subjective examination of any case, it is very necessary to learn all the points in the family history that may bear upon the question. We must know all about the other children, both older and younger. how long a period elapsed between the births, the maturity or immaturity of the children. etc.

We know perfectly well that the manifestations of intra-uterine disease are numerous and varied, the most common being those of an interference in or perversion of the nutritive processes, that is, the body or some one part of it is imperfectly nourished. Next in frequency of occurrence come the phenomena of an inflammatory nature, and the least frequent are the intra-uterine new-growths or neoplasms. It is an accepted doctrine that an inheritable disease loses in power by transmission, and that in embryo-life there is a general tendency to recovery from the morbid conditions transmitted from the parents, that is, a tendency to revert to the true healthy type. We do not expressly include syphilis in this class, but I see no reason why we should not do so. Of course, this tendency to recovery is greater when one of the parents is free from disease. May not this be one of the reasons why purely *congenital* lesions of the eye are comparatively so rarely met with in syphilitic children? Again, it seems to be generally admitted that hereditary syphilis is transmitted with the characters of the period at which the parents are at the moment of conception, and that the fœtus always enjoys the benefits of the treatment they may have undergone. May not this be another reason for the rarity of these cases? For the influence exerted on the disease of the parents by treatment may explain the apparent difference which exists between the periodic evolution of the symptoms in the adult and child.

There is probably no doubt that, when coryza appears at birth, it is due to the formation of mucous patches upon the mucous membrane of the nose, which may sooner or later lead to necrosis of the underlying bones, or may have already done so. If such a process can occur during the intra-uterine life of the child, it is not at all improbable that lesions of the deeper tissues of the eye may occur more commonly than we have hitherto supposed. Though the general opinion of authors seems to be that iritis is but rarely met with as a symptom of syphilis in infants, and still more rarely as a purely *congenital* symptom, I still think that it occurs more commonly than is thought for. Iritis in infants is much less marked in its symptoms than when it occurs in adults. There is but little ciliary injection, sometimes none at all; often no discoloration of the iris, and sometimes even no noticeable irregularity of the pupil. In fact, we only recognize it by its after-effects. Adhesions of the iris to the capsule of the lens very often act as an irritant, tending to the development of inflammatory products. As a consequence, lymph is thrown out into the field of the pupil upon the capsule. If this is not soon absorbed, it becomes organized and forms a permanent, opaque, adventitious membrane, adherent to both capsule and pupillary margin of the iris, and blocking up the pupil more or less completely, the opacity being generally greatest at the centre, and shading off towards the sphincter of the iris. Such an appearance, where the iris is only slightly discoloured, and may be only pushed forward a little at the periphery, but where it is adherent to the capsule, and the pupil blocked by a grayish membrane, is not a very uncommon occurrence in young infants, and I have myself met with it at birth, proving the process to have been intra-uterine.

We sometimes meet with morbid changes in the eyes of young infants, which are only to be explained by attributing them to inflammatory processes, probably an irido-choroiditis, which must have had their origin during intra-uterine life. Sometimes in these cases the cornea has been perforated, the iris has become adherent in the wound, and is covered by more or less organized material. Sometimes there are one or more small ciliary staphylomata, which increase slowly as the infant grows older. These, Zeissl does not believe are signs of inherited syphilis; but this cannot be determined with certainty until later, for in a few days or weeks an eruption may appear about the mouth or anus, together with a coryza, which would settle the disputed point at once.

Some of the diagnoses of intra-uterine inflammation are decidedly doubtful, for the cases have not been examined with sufficient care, nor has allowance been made for the silent character of the process. Thus Lawson reports a case of "intra-uterine syphilitic iritis" in a little girl, æt. 7 months, in which the pupil was contracted and irregular from adhesions to the capsule, and an old deposit of lymph blocked up the pupil at the centre. This child had always been delicate, but the eye had never been inflamed from birth, according to the statement of the *parents*. When one month old, she had had "thrush," which was followed by an eruption on the nates and vulva. It is by no means certain that this iritis had not occurred after birth, and had ended without a symptom that would attract the attention of the parents. Another case of so-called "iritis in utero" has been reported by Keyser in the *Phil. Med. Times* for June 25, 1874, in which the history is exceedingly unsatisfactory. The child was 7 months old, and showed evidences of an old iritis by posterior synechiæ and occlusion of the pupil in both eyes. There was no history of an inflammatory action in the eyes since birth, and the child was fat and healthy, but had had "snuffles." The *right* nostril was closed by a diaphragm of tissue in which was a small opening. The *left* nostril was free and discharging a muco-purulent fluid. This case may have been an iritis coming on in this latent, silent way after birth, and giving no visible sign to attract the attention.

I have myself seen three cases of pure *congenital* iritis in new-born infants, or rather of *congenital* posterior synechiæ, in which I saw the infants at or within two hours after their birth. In one case the pupils of both eyes were bound down to the capsule of the lens by posterior synechiæ, and in two the adhesions were confined to one eye. The iris was not at all discoloured, and nothing would have been noticed in any of the eyes if I had not been on the lookout for just this trouble, and used oblique illumination and, subsequently, atropia. The tendency to the formation of a pupillary membrane was not very marked in any one of the three cases. All these children developed "snuffles" within two weeks after birth, and two of them were born with patches around the anus. Two of the mothers bore unmistakable evidences of constitutional syphilis, but the third woman was apparently healthy. The fathers were never seen, and nothing was known about them. In all three cases miscarriages had preceded the birth of these children; in two of them the mothers had aborted twice, and in the third case the mother had had one miscarriage.

The opinion of Förster in regard to syphilitic choroiditis I cannot assent to. He thinks that it only occurs in the adult or later years of life, is the result of acquired syphilis, and corresponds to the later secondary and early tertiary symptoms of the disease. In two of the three cases of iritis just mentioned, signs of choroiditis were observed after dilatation of the pupil; and I have seen them in one or two other instances of infants, though never where iritis was not present, or at least the remains of posterior synechiæ. In more than one case of interstitial keratitis, after the corneal opacity had cleared up somewhat, I have seen floating bodies in the vitreous, and some of the general features of intraocular syphilis; such as a local hyperæmia round an effused spot of lymph, atrophic changes, and pigment patches more rarely.

As this paper is based mainly upon observations made upon interstitial keratitis, a few words explanatory of the state of the question may be indicated. Though Hutchinson's views in regard to this form of keratitis, and its connection with inherited syphilis and a peculiar condition of the permanent incisor teeth, have been generally accepted in England and this country, it is not so on the continent of Europe. The Germans almost universally reject it, and Zeissl thinks that parenchymatous keratitis is due in seven-eighths of the cases to scrofula, or to misery, poverty, and lack of nutrition. Hirschberg thinks that only five in one hundred cases of this variety of keratitis can be attributed to congenital syphilis. On the other hand, Bäumler is about the only German author of note who agrees with Hutchinson. He says that when the duration of the process is prolonged, it is associated with iritis, usually serous, though sometimes exudative. He thinks it extremely rare to meet with this form of keratitis in acquired syphilis.

I do not believe that the occurrence of interstitial keratitis, and Hutchinson's teeth in the same case, is anything like as frequent as has been supposed. Certainly many cases are seen here of keratitis without the peculiar crescentic notch in the incisor teeth to which Hutchinson first called attention. The teeth are always badly developed, and are often thin and brittle, with irregularly indented margins and edges, having sometimes the appearance of a superficial caries, but the regular crescentic notch is very often absent. Such teeth are no doubt suspicious, but they point to a scrofulous condition, and not to a syphilitic, and I am inclined to think that the same may sometimes be said of the interstitial keratitis. The opinion seems to be gaining ground in this country that though syphilis may be at the bottom of this form of keratitis, yet a strumous tendency is also as frequently inherited, and that want and privation, a confined and vitiated atmosphere, are important factors to be duly considered in its causation. Girls are apparently more subject to it than boys, and, of course, the delicate and anæmic are particularly apt to be affected. The interstitial deposit of proliferation is sometimes very dense, and occasionally involves the entire cornea up to the scleral junction, and its chief characteristic is its marked chronicity. Patients are frequently under treatment for months without any change that is perceptible in the condition of the infiltrated deposit; or if a change for the better is noticed, it soon ceases, and a relapse occurs.

Even when the improvement is a steady one, it is extremely slow, and can only be noticed to advance from month to month. Having watched a number of these cases for many months, I have become convinced that the constitutional origin of these cases is not as well understood as it should be, nor its complex nature appreciated. It seems to me that we know enough about syphilis, both inherited and acquired, at this date, to consider carefully and recognize what may be called its great combining qualities as a disease, its miscibility. Having settled unmistakably that our patient has inherited syphilis from one or both parents, we should not cease our inquiries there and commence our treatment, but endeavour to find whether our patient has inherited any other taint, or possesses some other diathesis, which might not only modify the constitutional syphilis, but also modify very materially the treatment. Struma and tuberculosis are very frequent coexisting taints with the congenital syphilis, though the signs of their presence may often be very indistinctly marked. Having recognized the existence of two or more of these constitutional diatheses, we should treat them all, and if this be done in cases of interstitial keratitis, the duration of the disease will be much shortened. Experience will lead us to modify the combined treatment, as the different diatheses develop, or the various symptoms become more or less manifest. For instance, if a patient with interstitial keratitis and notched incisor teeth has enlarged cervical and submaxillary glands, thickened alæ to the nose, thickened and indurated lips, and a tendency to the development of herpetic vesicles on the conjunctiva, we must prescribe mercury with caution, and never continue its use for any length of time without an intermission. Its administration should be combined with cod-liver oil and some preparation of iron, and the patient should take a daily bath.

When the miscibility of inherited syphilis with scrofula seems to be the most marked, several things should be taken into account in the treatment. Where there is emaciation, without any distinct interference with the digestive powers, cod-liver oil without iron is indicated; but where anemia comes in, iron should be administered, and the best form is usually the syrup of the iodide. On the other hand, if the secretions are disordered, with or without emaciation, you must administer the alkalies with milk, or the hyphosphites.

If tuberculosis or a tendency thereto is the complicating element of disease, the great indication is to give bark and the mineral acids, with or without cod-liver oil as may be best.

By recognizing the existence of these complications, and the mutually modifying effect which they produce upon each other, we may arrive at a rational treatment of one and all, and materially shorten the duration of a parenchymatous keratitis.

The following cases will best illustrate the importance of attending to these points:—

Case I. Thomas B., æt. 18, coloured, first seen May 10, 1875. Is tall, thin, and emaciated, and has a slow, listless gait. Says his eyes have been weak since early childhood, and three or four times a year they become inflamed, though rarely both eyes at the same time. Has had a cough for nearly a year, but expectorates very little, has no dyspnœa or night sweats. Mother died of phthisis after a long illness, and one sister died of same trouble. Diffuse keratitis, most marked in left eye, where there exists an inflammatory exacerbation with iritis. One upper incisor tooth has crescentic notch, and all the incisors and bicuspids are badly developed and very much decayed. Chest expands but slightly on deep inspiration. Dulness over upper lobe of right lung, with prolonged expiration, an occasional catch in the breath, and some few fine râles on inspiration. Patient's appetite poor, but digests apparently well. Is a night waiter in a restaurant.

Treatment.—Hot water applications every two hours for fifteen minutes to the eyes; atropia three times a day (2 grain solution); gymnastic expansion of chest by long, regular inspirations for five minutes four or five times a day. Mercurial inunction, one drachm morning and night, and tinct. cinchon. co. with acid. nitric. dil. This patient showed but slow improvement until the nitric acid was changed to the nitro-muriatic acid, and cod-liver oil added to the treatment. The change for the better was then a comparatively rapid one, and, at the end of three months, the hot fomentations could be dispensed with, as the opacities in the corneæ had entirely disappeared. The treatment was kept up for a month longer, and the patient was then discharged, with his general health very much improved, and the interstitial keratitis about cured.

Case II. Annie M., æt. 10, first seen June 7, 1875. Interstitial keratitis of both eyes, with not much vascularity, but considerable photophobia and lachrymation. Began two years ago in both eyes. Bridge of nose sunken, alæ widely dilated and spread out on cheek, teeth very irregular and badly developed. Two of lower central incisors have the crescentic notch. Marks of old glandular abscesses on neck and under lower jaw. Two older children strumous. Mother died of phthisis.

Treatment.—Hot fomentations and atropia assiduously for two months, with cod-liver oil, syr. ferri iodidi, and an occasional laxative. The improvement was but slow and slight, and as the child was showing symptoms of disordered secretion, the oil was stopped internally, and used as an inunction every day, and the hypophosphites of soda and lime given internally. The child began to improve almost immediately, and in six weeks the fomentations and atropia were discontinued, and the long-continued emaciation began to disappear. The treatment was continued for two months longer, with an occasional intermission of the iodide of iron, and the child was discharged at the end of five and a half months of treatment with clear corneæ, and almost well in health.

Case III. John M., æt. 8, first seen Nov. 8, 1875. Interstitial keratitis of left eye for four months, not very vascular, marked photophobia and lachrymation. One year ago had a cough, and since then epileptiform convulsions at irregular intervals. When a baby, had brain fever, and since then a constant ozæna. Teeth irregular and badly developed. Two years ago lost all incisor teeth in upper jaw, and second set has never appeared. Child puny and emaciated, with occasional cough and shortness of breath, and attacks of diarrhœa. Mother and one brother died with some lung trouble. One sister has phthisis; father syphilitic. Dulness over upper lobes of both lungs of patient; respiration hurried, and expiration prolonged and rasping.

Treatment.—Hot fomentations and atropia locally. As child's digestive organs were in a bad condition, the cod-liver oil was used as an inunction twice daily, preceded by a bath. Hypophosphite of soda internally, with bark and nitric. acid. dil. For three weeks there was not a sign of improvement, and the diarrhœa became threatening. The hypophosphite of lime was then given instead of the soda, and phosphoric acid in small doses, and the child began to improve, the first improvement being in the bowel symptoms. Strength and flesh slowly returned, the appetite improved, the cough grew less, and last of all the opacity in the cornea showed signs of absorption. Yet was the progress very slow, and it was not until seven months had elapsed that the cornea was entirely clear, and the child could be regarded as cured. One peculiarity was the fact of the keratitis being confined to one eye.

Case IV. Joseph P., æt. 18, first seen Nov. 23, 1876. Double interstitial keratitis of five weeks' duration, this being the fourth attack since childhood. Nose sunken and bridge very broad; lips thickened, face covered with acne, iritis in right eye; teeth irregularly notched and incisors much worn. Has a brother and sister with inflamed eyes, and one of them has had abscesses in neck. Patient well developed physically, but has marks of old cervical adenitis.

Treatment.—Hot fomentations and atropia every two hours. Salt-water bath daily, with brisk rubbing down with coarse towel. Syr. ferri iodidi and a laxative every second day. There was a slow improvement for a few weeks, and then a rather rapid fall backward, without any apparent cause. The fomentations were assiduously maintained, and the iodide of iron discontinued. As bowels tended to become constipated, ten grains of calomel were administered, and after the bowels had acted, a steady course of mercury in the form of the corrosive chloride was begun and continued with slight intermissions for nine weeks. The improvement was marked from the beginning and progressed steadily up to a certain point. The opacity of the corneæ cleared up markedly, but the process of improvement finally came to a stand-still. The mercury was then discontinued, and, as a sort of last resort, the iodide of potassium in half-drachm doses was given. Its effect was very rapid; the opacity lessened daily, the complexion improved, and the patient's general health became very much better. At the end of the fourth month the patient was discharged with one cornea perfectly clear, and only a very faint opacity at the centre of the other.

Case V. Minnie B., æt. 9, first seen Feb. 15th, 1877. Double interstitial keratitis with great vascularity and obstinate photophobia and lachrymation of two months' duration. Child small and thin, forehead broad and squarely prominent; teeth badly developed and without enamel in places, but not notched. Mother died of phthisis. Marks of old strumous adenitis on neck and under lower jaw. Has one brother who is puny and sickly, but his eyes are sound. Father is said to be well. This child lives in a healthy region in northern New Jersey, but has never been strong or well. Has no appetite, and bowels are constipated. Had snuffles when a very young baby, which lasted for nearly two years, and also an eruption about the anus, for which she was treated. Here was unmistakably a case of congenital syphilis united with a scrofulous constitution, and a tendency to pulmonary phthisis. The child had the perforation of the nasal septum, pointing to a perforating ulcer, commencing in the mucous membrane, and working through the cartilage, with clean-cut margin, perfectly healed over, which Paget says is never met with except in the members of tuberculous families. This is by no means a common occurrence, but I have seen it once or twice before. The surroundings and diet of this patient were unusually good, but she had been running down fast. Hot fomentations and atropia were ordered every four hours; cod-liver oil was used as an inunction twice a day; an artificial salt-water bath given every morning, and the iodide of iron with the hypophosphites of lime and magnesia. Fortunately the child was fond of milk and digested it well, so that the hypophosphites could be given in it. In spite of all treatment, good food and plenty of exercise in the country air, the child ran down hill, and the keratitis grew worse. Though unwilling to administer mercury, there really seemed nothing else to do. The treatment was changed—the hypophosphites and iodide of iron were discontinued, but the inunction with cod-liver oil was continued, and in addition half-grain doses of calomel were given every hour for the first day, and afterwards every three hours. At the end of a week there was a perceptible improvement in the keratitis, and the dose was increased to a grain every three hours. From March 22d the improvement has been steady, though somewhat slow, not only in the eyes but also in the general health. The appetite has improved and the complexion is becoming clearer, though there is still much to be desired. The disease has now lasted four months, but improvement has set in, and unless some untoward symptoms arise, may be expected to continue. The case at one time seemed desperate, so that the life of the little patient seemed rapidly approaching an end. If the child had been an inmate of a city tenement house, all treatment would have failed, but the country air and good food kept up a reserve supply of vitality, until the right means had been found to effect a cure.

This case teaches us that we cannot always tell beforehand when the administration of mercury will be borne, and when it will not. Calomel, in small doses frequently repeated, seems to be the most efficient form of mercury for these cases. I have used it in a great many, have never seen any ill effects from its use, and have seen it produce excellent results where no other preparation of mercury could be taken.

Another lesson to be learned is, not to despair and give up trying, because of the chronicity of a case. There is no doubt that the duration of an interstitial keratitis is increased by the presence in the patient of a strumous or tuberculous tendency, or both. This fact must be recognized and the appropriate treatment must be given for the combined diathesis, or our patience will be exhausted long before we have made any impression upon the keratitis.

NEW YORK, 47 East 23d St.

ARTICLE IV.

SOME CASES OF SYPHILITIC CHOREA. By ROBERT H. ALISON, M.D., Assistant Physician to the Infirmary for Nervous Diseases, Philadelphia.

CHOREA, due to syphilitic disease of the nervous centres, is so rare that up to this time, after an extended search, I have been able to find only two cases recorded.

The present paper contains the notes of two cases, both unilateral; one kindly furnished by Dr. Weir Mitchell from his private note books, the other taken from the note books of the Infirmary for Nervous Diseases, and in consideration of their interest, and the comparative inaccessibility of the work in which they are recorded, the notes of the two previously recorded cases are also appended. In one of the latter the affection was unilateral, and in the other general. The report of the former is given in full, the latter is condensed as much as possible.

CASE I. *Hemichorea.*—E. M., æt. 7, is one of six children, the rest of whom are healthy. The mother says, that the child contracted syphilis from her nipples while nursing, and had a distinct rash (both mother and child were under the care of Dr. W. S. Stewart at the Charity Hospital, Hamilton Street, and to him thanks are due for the early history of the patient). The child has otherwise been healthy, but subject to colds and sore-throat. She had scarlatina in 1872, and torticollis in the winter of 1874. From both she made good recoveries.

Early in June, 1874, she had a slight but distinct attack of right hemiplegia, face included. She was treated by Dr. Stewart with mercury and iodide of potassium combined, and speedily recovered. Later in June she fell and received a deep wound over the right eyebrow; did not lose consciousness. This was followed by pain in that locality, slight at first, but increasing in degree so that by July 10th the suffering was very great.

July 27. The mouth was noticed to be drawn to the right, and the left arm slightly paralyzed. No palsy of the leg was observed at that time. Voice was not as clear as usual. Some doubt as to fever at night. Appetite failed. Bowels regular. On the 29th she began to lose power in the left leg, and by the 31st she dragged the left foot slightly. There was some nausea and vomiting. Appetite improved. The arm had steadily grown worse.

Aug. 10. Was seen for the first time at the Infirmary. Walks with very little difficulty. Left forearm is completely powerless, can elevate the arm slightly. Left facial palsy. No ptosis nor squint. Tongue protruded straight. Over the right eyebrow there is a small scar one-half inch long, but there is no depression, nor any pain under pressure. No abnormal heart sounds. The right eye-ground is paler, and the veins more distinct than those of left. Urine healthy. Electro-muscular contractility normal. Iodide of potassium was ordered in increasing doses, and faradization.

17*th.* There is some improvement in the general condition. The fingers are disposed to contract.

March 10, 1875. The patient has been under care here since last note; improvement has been very slow. Under the use of the iodide and electricity the contraction of the fingers, which had become marked, has disappeared. She now uses the hand well; shuts and opens the hand well, but cannot open one finger at a time. The first phalanges are held in extreme extension, resembling a claw-hand. The power of the arm has increased. Some palsy of the face remains.

Distinct irregular movements of the right arm and leg were noticed for the first time to-day. The fingers twitch, and she is unable to retain small articles in her grasp. There is no twitching of the muscles of the face. No cardiac murmur heard. Fowler's solution was ordered in addition to the iodide.

26th. The irregular movements have greatly diminished, but have been much worse than when last seen.

April 2. Choreic movements have disappeared, but the mother states that they still occur at times.

23d. Movements have ceased. There is occasionally nausea and vomiting. Arsenic stopped. Iodide increased, and bromide ordered.

24th. The mother states that the child is very ill, and confined to bed, and that she has had during the last twenty-four hours two attacks in which there appeared to be loss of power, but no loss of consciousness; that she recognized those about her, but did not or could not speak.

Dr. Wharton Sinkler took charge of the patient at her home from this day on, and recorded the following notes:—

April 25. The child is very ill, unable to swallow; has refused food, and is unwilling to drink anything. There is some fever; increased weakness, but no increase of loss of power on the right side.

26th. Patient is quiet. Right side is paralyzed completely. Face drawn distinctly to the left, when she smiles. Appears to be conscious, but cannot speak, nor protrude the tongue.

She gradually grew worse, became comatose, and finally died May 2d.

Every effort was made to obtain a post-mortem examination, but no inducements could influence the family.

Case II. *Hemichorea.*—B. B., aged 33 (consulted Dr. Weir Mitchell in Dec. 1873), was perfectly healthy previous to the autumn of 1866; at that time he contracted a chancre, which was followed by non-suppurative buboes; slight eruption on the scalp, some alopecia and ulceration of the throat; later, by nodes on the tibiæ, and some necrosis of the posterior nares, leaving an opening in the hard palate, which remains.

In July, 1867, he was suddenly and without any premonition whatever (no headache nor any head-signs) attacked with difficulty of speech. He could not *easily* find the word he wanted. There was no paralysis, nor any trouble with vision. From this he rapidly recovered.

Dec. 15, 1873, having taken three drinks of whiskey and gone to sleep, he found on waking some palsy of the right side. The loss in the right hand was partial; he could dress himself, and cut his food, but could not direct the motions of the arm well. There was complete aphasia, but articulation remained. No loss of sensation or of consciousness. There was left frontal pain at times—a come-and-go pain.

From this also the gain was rapid, so that in April, 1874, the right hand registered by the dynamometer 48, left 135. After this he went south, and through exposure contracted intermittent fever, and had a relapse of all previous symptoms. During the summer he recovered slowly, but fully as to all points. Weight increased from 150 to 180 pounds.

The following notes in quotation were given to Dr. Mitchell by the physician who had charge of the patient during the beginning of the choreic attack:—

"Irregular spasmodic movements of the left side of the face and left arm were noticed on the morning of Sept. 12th, 1874. These movements, at first slight, were rapidly increased by a walk of a mile, undertaken about 10 A. M. The muscles involved were those of the left side of the face, neck and shoulder, arm, trunk, and leg. The movements were irregular, of extension, flexion and rotation; uncontrollable by any voluntary effort. Chloral, gr. xv, was given, and the attack subsided after a total duration of about two hours. The same dose of chloral was repeated at bedtime, and a quiet night obtained.

"*Sept.* 13. Slight spasmodic movements of the arm and leg were observed during the day, but the patient moved about as usual until night. At nine o'clock these movements increased, and although kept partially under control during the night by chloral, gr. xx, given at 10 P. M. and at midnight, but little sleep was obtained.

"14*th.* The effort to dress on Monday morning excited the slumbering spasms into violent action, so that the body was tossed and twisted on the bed; or if standing or walking, was jerked about the room, and the limbs knocked with force against articles of furniture. The face was contorted, the head twisted to the left, and the trunk flexed to the same side. The manner was noisy and excited. Chloral, gr. xx, was given, and half an hour later morphiæ sulph. gr. $\frac{1}{4}$, injected hypodermically. The spasm was moderated but not controlled. At 1 P. M. $\frac{1}{60}$ gr. of atropia was given in pill, and in one hour the convulsion substantially ceased. The atropia was repeated at 6 P. M., and chloral, gr. xx, given at bedtime. The night was passed quietly.

"15*th.* Atropia, gr. $\frac{1}{60}$, given in the morning, and repeated at noon. There were slight irregular movements during the day, but no acute attack. As the patient started on his return home in the afternoon, his condition was closely watched; but no atropia given in the afternoon and no chloral at night. The night was restless, but some sleep was secured.

"16*th.* Atropia, gr. $\frac{1}{60}$, given in the morning; no disturbance during the day. Chloral, gr. xv, at bedtime, and repeated in two hours; but little sleep obtained.

"17*th.* Movement somewhat increased; getting worse at night. Atropia, gr. $\frac{1}{60}$, and potass. bromid. ʒss, t. d. Two doses of bromide given at bedtime, and one during the night. Slept badly.

"18*th.* Decided increase of movement. Treatment continued.

"During these attacks there has been no loss of consciousness and no disturbance of intellection, except that the manner was excited and sometimes noisy, and there was once uncontrollable laughter. The pupils have been normal; there has been no biting of the tongue, nor stertorous respiration; no increase of aphasia; the difficulty in speaking has increased, but varies, reaching its maximum during an acute attack; urine apparently normal; bowels constipated, but not more so than usual for a long time.

"23*d.* Treatment continued since 18th. Atropia, gr. $\frac{1}{60}$, three times daily, with chloral, gr. xx, at bedtime. Patient kept steadily in bed since that time; can lie quiet, unless attempting motion, when the choreoid movements are excited; talking, and particularly laughing, excites movements; mind disturbed, dwells upon one or two topics; easily provoked into fits of empty laughter; sleeps better, without motion during sleep."

Urine healthy; perfect control of bladder and rectum; appetite good; sleep irregular.

Dynamometer, on Sept. 17, indicated to left hand 100, to right 70;

in squeezing, the left hand is suddenly thrown out from the side; eye-grounds healthy; is myopic, but has not worn glasses; the choreic movements rapidly disappeared under iodide of potassium pushed to 70 grs. daily. (*Oct.* 28, '74.)

CASE III. *Hemichorea.*—(*Des Affections Nerveuses Syphilitiques*, par D. A. Zambaco, Paris, 1862. (Obs. 77.) L., a washerwoman, aged 22, was admitted to the St. Lazare, April 20, 1852, for constitutional syphilis. She had never had rheumatism nor scrofula, nor any convulsive disease. Her family history was free from any constitutional taint. She was treated with the protiodide of mercury. At the end of June, she was about to leave the hospital, cured of her troubles, when she was taken with uneasiness (malaise), frontal and ocular headache, accompanied by intense fever; then a vesicular pustular eruption of the skin came on. She was treated with Van Swieten's solution and the iodide of potassium. These accidents were controlled by this treatment, when, August 2, she felt intense headache, with severe occipital pain; later there was vomiting, sleeplessness, and giddiness. The face was florid and swollen (vultueuse); the eyes injected. Leeches were applied to the anus. Four days after, although the head symptoms had disappeared, she noticed in the left arm, then in the left leg, spasmodic and abrupt involuntary movements. She noticed at the same time a marked weakness of the whole side, with moderately severe pain extending from the elbow to the ends of the fingers. There was the same pain in the anterior muscles of the leg, with a feeling of weakness of the knee, to the degree that in walking the leg flexed under the weight of the body, while the foot rotated inwards. It was impossible for her to eat with the left hand, a spoon brought near to her mouth was immediately thrown far from her body. The tongue turned to the right; the right eye and the muscles of the face were also involved. The cutaneous sensibility remained normal.

Sept. 1. The chorea was at its height. The diagnosis was confirmed by Dr. Ricord. From the 3d to the 10th the nervous phenomena diminished progressively; only a slight trembling remained on the 12th. On the 15th the choreic symptoms consisted only in a very slight movement of the left lower eyelid, of which the patient was not conscious. On the 20th the cure was complete; the iodide was continued. M. Costilhes retained the patient under his care at the Saint Lazare for two months without observing any new manifestations showing disturbance of the nervous system.

CASE IV. *General Chorea.*—(Zambaco, Obs. 76.) G——, aged 20, a seamstress, entered La Pitié, Oct. 11, 1858, under the care of Dr. Gueneau de Mussy. A robust, healthy looking girl, free from evidences of chlorosis; had never had rheumatism, nor heart disease, nor any nervous affection. No member of her family had ever had any disease of the nervous system. During March, she had entered La Charité for general chorea. At that time the movements were disordered and involuntary, attributed to fright. She remained there three months, taking many medicines to no purpose. In July the choreic movements involved particularly the shoulders, the muscles of the trunk, and upper extremities. They consisted in very marked and almost continual convulsive starts, with elevation of shoulders, twisting of the face, sometimes to one side, sometimes to the other, occasional sudden blows from the forearm on the chest or abdomen. The movements of the shoulders extended to the thorax, producing noisy inspirations, like children's sobs. Eyes and face seldom convulsed. Tongue bitten occasionally. The lower extremities were almost quiet. Restless and very emotional—movements and tone of voice abrupt and masculine. Speech jerky and sometimes difficult to understand. The movements cease during sleep.

In October she walked zigzag, stopped and began again abruptly. Speech and gait sudden and jerky. Violent pains in the limbs and head, particularly during the night. Pain also in the ears, with marked deafness. An eruption appeared upon the trunk and limbs. Early in November the eruption became evidently syphilitic. She was treated with the iodide of mercury, and improved so rapidly that by the 2d the choreic movements had ceased. Some deafness and pain in the lower limbs continued, and the copper-coloured stains upon the skin remained. In January the stains also disappeared. On the 2d she had a violent attack of hysteria, continuing three hours, during part of which time there were disordered movements of the extremities. There were three other attacks of similar nature during the month, and one epileptoid in character. All these occurring at night. The pains in the extremities and deafness in the right ear returned. The iodide of potassium was added to the mercury, and under this treatment she quickly recovered as to all points. She left the hospital at the end of five months perfectly cured.

In the cases above recorded there is no history of rheumatism nor any heart affection; in fact, no history of any disease to which chorea is ordinarily referred. In Case I. repeated examinations of the urine gave no evidence of injury to the kidneys following the attack of scarlatina; and in Case IV., although the attack was attributed to fright by the patient, nothing is given to confirm the opinion. Scarlatina and fright as causes in these cases may therefore be left out of the question. The only cause remaining is syphilis, and to this must the chorea be referred. In each there is a distinct history of syphilis, and in the last two there were syphilitic rashes present to confirm the view. In Case III. there were present, as premonitory symptoms of cerebral disease, prolonged and violent headache, vomiting, sleeplessness, and giddiness. In Case II., although there were no symptoms immediately preceding the chorea, there is a history of aphasia seven years before, and of hemiplegia on the opposite side from the chorea less than one year before, showing that the syphilitic dyscrasia remained. In Case I. there was first right hemiplegia, two months later left hemiplegia, preceded by long-continued and violent headache, and eight months later, before the last attack was fully recovered from, right unilateral chorea, which gave place to hemiplegia upon the same side, followed by coma, and finally death. In Case IV. no mention is made of any premonitions, but the history of the case fully shows the cause of the chorea. The therapeutic test also circumstantially confirms this view.

In the first three cases the chronic spasms began unilaterally, and so continued throughout the attacks. Those regions only were involved which are usually paralyzed in hemiplegia. Hughlings-Jackson (*Lancet*, Feb. 1, 1873) has shown that "convulsions beginning unilaterally depend on disease of the same cerebral region as does hemiplegia of the common form, but hemiplegia depends on 'destroying lesion' of the corpus striatum, the convulsion on a 'discharging lesion' of the convolutions near to this body—convolutions in the region of the middle cerebral artery." In this region must be sought the "discharging lesion" in these cases, and they may therefore be clased as cases of choreic hemiplegia.

The theory of "spasms of vessels or altered molecular states of nerve tissue" is insufficient to explain the chorea in these cases. In fact their value is due to the certainty that the disordered movements depend upon positive lesions. It would be as just to attribute the preceding attacks of hemiplegia in Cases I. and II. to functional derangements, as to the chorea. A syphilitic history, positive successive groups of symptoms, and among them, chorea, which yield, as if by magic, to special treatment, show, as surely as can be, without post-mortem examinations, that there was an organic lesion, and make it highly probable that the lesion was vascular. And this vascular lesion, in turn, was most probably occlusion of the minute vessels of the corpus striatum and neighbourhood (Hughlings-Jackson, *Edin. Med. Journ.*, Oct. 1868). Charlton Bastian (*Paralysis from Brain Disease*, London, 1875, p. 29) believes that the occlusion in cases of chorea, from other causes, is due to thrombosis rather than embolism. Inflammatory and degenerative changes are among the most common forms of developments due to syphilis. These three cases are, therefore, due to syphilitic changes in the coats of the vessels supplying the corpus striatum and vicinity, producing thrombosis. In Case I. the spreading of the process of thrombosis so as to involve the larger vessels, causing coma, and finally death, also sustains this view. The history of the commencement of the chorea in Case IV. is not given, but since chorea often begins unilaterally, this probably began so, and became general later; the process of thrombosis involving both corpora striata.

The London letter in the *Philadelphia Medical Times* of April 14, 1877, contains very incomplete notes of two cases of chorea in syphilitic children. In one, a boy of seven, the chorea was unilateral, and did not yield to treatment until the syphilitic element was suspected, when mercury was added, and the movements quickly subsided. The other case, a girl, aged twelve years, sister of the preceding, developed chorea while the boy was recovering, and under the same treatment did not improve until mercury again was added. The full notes of these cases would be interesting and of great service, considering the rarity of the affection.

The writer of the London letter thinks the chorea in these cases was an intercurrent affection, and only modified by the constitutional disease. This view was held at the Infirmary in Case I., and the patient was therefore treated with Fowler's solution, but the unfortunate result, and the reasons above given for the theory of thrombosis, caused a preference for the later view.

The stage of the affection in which the attacks occurred is also of interest. In Case III. the chorea began almost immediately after the constitutional fever had subsided. The same may be said of Case IV., as it is probable that the syphilitic rescola, the first symptom of constitutional involvement, was so slight as to pass unnoticed. In Case II. the attack occurred in the eighth year, and in Case I. in the seventh year from the infection. Zambaco calls attention to another point of interest in Case IV.: the hysterical attack following immediately after the general chorea, showing a second syphilitic exacerbation. The movements were severe in character in the third, violent in the second and fourth, and quite mild in the first case.

Including the cases mentioned in the *Medical Times*, the attacks occurred in four females and two males. Chorea from other causes is also more frequent among females than males.

The diagnosis depends upon the history of the case, apparent evidences of syphilis, and absence of other causes, as rheumatism, heart disease, etc. The movements also seem to be more spasmodic and less continuous than in ordinary chorea.

The prognosis depends, as in other syphilitic diseases of the nervous system, upon the time the constitutional affection is discovered, the earlier the more favourable.

Some form of mercury alone or combined with potassium iodide promises the best results in those cases occurring in the early stages of the constitutional disease; and the iodide alone pushed to large doses in the later stages.

Article V.

Two Cases of Catarrhal Inflammation of the Bladder, resulting in the plugging of one Ureter and the formation of cheesy masses in the Kidney; Death from Acute Tuberculosis.

By Morris Longstreth, M.D., Pathologist to the Pennsylvania Hospital; Lecturer on Pathological Anatomy at the Jefferson Medical College.

The two cases, which form the basis of this paper, present a comparatively rare pathological picture; they give a striking confirmation of the dependence which an irruption of miliary tubercle has on the previous existence of a cheesy mass in the body. Still further, the cases afford a better explanation than any hitherto given of that form of destruction of the kidney which has received the name of local or primary tubercle (the second form of tubercle described by Rokitansky).

Case I.—E., æt. 23, died Oct. 26th, 1876. His history is that of impaired health for four or five years. About two years prior to death he contracted gonorrhœa, which was followed by a stricture, and about a year later (Oct. 1875), by inflammation of the bladder. At this time he caught a severe cold and had pleurisy, and from that time forward, his urinary symptoms became steadily worse, up to the time of his death.

Dr. Finn had charge of the case from June, 1876, and at this time the patient was quite thin and evidently suffering considerable pain most of the time. A suspicion of vesical calculus was proved to be unfounded, after a careful examination. There was extreme tenderness over the lower part of the abdomen, especially about the region of the bladder. Micturition frequent (hourly, and sometimes half-hourly). Physical examination did not reveal any evident affection of either kidney. The urine contained pus and abundance of catarrhal products; but no tube-casts or sugar were found. The family history shows no inherited disease. It was impossible to obtain a satisfactory clinical history from the patient himself, and his family were ignorant of the presence of his disease, until a late period of his illness.

For the history of this case, and the opportunity of making the autopsy, I am indebted to my friend Dr. Wm. H. Finn.

Post-mortem Examination.—The body presented but little evidence of emaciation. The *great cavities* of the body showed no appearances of inflammatory alterations. The *heart* was normal. The *lungs* were heavy, congested, and œdematous; crepitation was everywhere present, except at a few places posteriorly. There could be felt pretty generally scattered throughout the lung-tissue, hardened nodules of small size. On section, the lung exuded abundant frothy and bloody serum; the cut surface presented a marbled aspect (catarrhal pneumonia) to a considerable extent, but no characteristic pneumonic solidification. Sparsely scattered in all directions were found numerous grayish granulations of very small size, of firm consistence, giving the surface a quite rough, uneven sensation to the finger. The dense areas at the posterior part of the lungs represented the condition of splenization. The *bronchial tubes* contained a considerable amount of thick, frothy serum; their walls presented no marked changes. The *spleen* and *pancreas* were normal. The *right kidney*, while somewhat swollen in appearance, presented no alteration of its parts; its tissue was quite markedly congested; the right *ureter* and its pelvis were unaltered. The *left kidney* was found very much enlarged, elastic under the finger in places, giving a very doubtful sensation of fluctuation; the *ureter* in all its course was very considerably enlarged, quite firm, with a somewhat uneven surface like an evenly twisted rope. The kidney was very firmly adherent in the connective tissue; the surface was uneven, slightly lobulated, in places appearing of a pinkish-white colour. On section, there were found large blocks of yellowish-white cheesy matter, somewhat quadrilateral in shape, occupying the seat of the pyramids; the pressure of the knife in making the section broke down these masses somewhat, but the areas were not, strictly speaking, softened. This cheesy matter was washed out subsequently by the preservative fluid.

The *bladder* was pretty firmly contracted and its walls were thickened. It contained a small amount of cloudy urine, in which was found a little soft calculous matter, some membranous shreds, and flakes of soft, cheesy-looking material. The mucous membrane was uneven, presented much congestion, and even ecchymosis in irregular patches. No distinct ulcers were found, but the surface was very distinctly softening and separating. The entrance of the ureter was somewhat enlarged, barely admitting the point of the finger, and in the calibre of the tube could be seen quite soft cheesy material, evidently breaking down and in the process of being cast into the cavity of the bladder. The lower end of the ureter was laid open and its surface appeared uneven and somewhat folded, but not ulcerated. The picture was the same as that showed by chronic bronchial inflammation. There was found no evidence of any tubercular deposit, or of isolated tubercle-nodules, either in the mucous membrane of the bladder or of the diseased ureter. The prostate was normal. The glands in the hilum of the left kidney were very much enlarged, of a whitish aspect exteriorly, and of rather soft cheesy consistence internally. There were no other glandular enlargements discovered. The *intestines* presented nothing especial. The *glands of the mesentery* were unchanged. The *liver* was normal.

No special examination of the *testicles* was made; there had been no symptoms referable to them during life, and at the post-mortem examination the scrotum and external parts showed nothing abnormal.

CASE II.—W. G. N., æt. 38, single, salesman; admitted to the Pennsylvania Hospital May 9, 1877; died May 14, 1877. His family history shows freedom from inherited disease; and he has enjoyed good health until five months previous to admission, when he caught a severe cold, followed by muco-purulent expectoration and quite a severe attack of hæmoptysis; fifteen other hemorrhages followed in the subsequent three months; his cough increased and he steadily lost flesh.

On admission, the patient is very thin and anæmic; complains of pain in his chest; has a hard cough, with slight muco-purulent expectoration; tongue coated; bowels regular. Physical examination gave evidence of marked disease within the cavity of the chest. Heart normal. Urine was cloudy, of light amber colour, acid, sp. gr. 1010, albumen about $\frac{1}{8}$, no sugar; it contained pus corpuscles and epithelium from bladder, but no tube casts; micturition exceedingly frequent, and urgent.

The patient grew weaker, became delirious on the day after admission, and continued in this condition until death, on the 5th day that he was under observation. His temperature was continuously subnormal, ranging from 99° F. on the day of admission, to 96.6° F., which point it reached twenty-four hours previous to death. The pulse varied from 90 to 110 per minute. The respirations averaged about 26 per minute.

The patient was at no time in a condition to give a good account either of his history or his sensations, and a complete physical examination was equally difficult.

For the clinical notes of this case, I am indebted to Dr. F. C. Hand, the Resident Physician; and for the use of the hospital clinical record, to Dr. J. Aitken Meigs, under whose charge the patient was admitted. The autopsy and its record were made by myself.

Post-mortem Record 24 hours after Death.—Rigor mortis marked; extreme emaciation. The inguinal glands on both sides were hardened and enlarged, as well as also some of them in the supra-clavicular region. A doubtful appearance, resembling an old cicatrix, was found in the left groin; there is also an old scar to be seen in the fold of the prepuce. The *cavity of the abdomen* contained a large amount of clear serum. There were no inflammatory changes.

Pleural Cavities.—The upper part of the *left* side was closed by adhesion, whilst the base of the left lung was compressed by a large inflammatory exudation, containing considerable flocculent lymph. The surface of the lung everywhere, as well as the thoracic wall, was covered by a layer of recent lymph of considerable thickness, firmly adherent to the subjacent tissues. On the *right* side, the pleural surfaces were also adherent; the characters of the adhesion indicated an older date, but in addition there was evidence of recent changes. Between the layers of fibrous tissue and lymph, were found a few patches of hemorrhage; one patch was of considerable extent.

The *pericardium* contained about f℥ij of serum, in which were found floating a few small fibrinous coagula. The *heart* presented nothing especial; its weight was 12 oz. av. The *lungs* were reduced in size, the left one being the smaller, due to the compression of the lower lobe. To the finger, they gave the sensation of greater solidity than normal, and numerous small nodules were felt. The tissue was everywhere crepitant. On section, there was seen considerable congestion and œdema, and the bronchial tubes were conspicuous. Both lungs, but especially the left, were studded with grayish granulations. Two or three cheesy masses, not larger than two peas in size, were discovered in each lung; some of them partly softened. *Bronchia:* On section of the tubes, the mucous membrane was found swollen, reddened, and uneven, covered with tenacious mucus. There was no evidence of ulceration or changes in the glands. The *glands at the root of the lungs* were blackened, some of them swollen, but none of them cheesy. The *spleen* was softened; the capsule was unchanged. In the substance of the organ were found several small, white, firm nodules, not larger than a small shot; weight, 7 oz. av. The *pancreas* was normal.

Kidneys.—Left was large and appeared a trifle swollen; the surface was mottled, and presented numerous whitish, hard nodules, similar to those in the spleen, which rendered the capsule slightly prominent. At these points the capsule was adherent, whilst at other parts of the surface it was removed with normal ease. On section, the relative proportions of the cortex and the medulla were found maintained. A half dozen white nodules were seen on the surface of the principal section; weight, 6 oz. av. The *left ureter and its pelvis* appeared normal. An examination of the *right kidney* and its *ureter*, whilst yet in position in the body, showed the kidney to be enlarged; and its ureter could be traced as a firm cord-like body, passing downwards over the brim of the pelvis to the bladder. After removal from the body, in connection with the urinary bladder, the enlargement of the kidney was found principally in its thickness; its upper part fluctuating like a thick-walled cyst; its lower end was firm, and had a whitish colour. On section, abundance of whitish-creamy material of fluid consistence escaped, containing numerous flakes of solid matter. This material occupied the pelvis, to whose walls firmer portions adhered; and numerous anfractuous cavities, having their seat corresponding to that normally occupied by the pyramids. The lower part of the organ showed but slight traces of normal structure, being mostly occupied by whitish masses, likewise corresponding somewhat to the situation of the pyramids, but also invading the cortical portions.

The *bladder* contained a small amount of clear normal-coloured urine. Its mucous membrane was uneven and injected; not only were large vessels to be seen, but the general surface was pinkish-gray (fine injection). On its anterior wall were two slightly excavated ulcerations of the mucous membrane of considerable extent, surrounded by a red injected zone, slightly elevated. On the right wall were other ulcers of smaller size. The surface of the trigonum vesicæ showed numerous firm, yellowish-white, little bodies, varying in size from a pin's head to a small shot; on the ulcerated surfaces were to be seen similar bodies, generally of very minute size. The entrance of the *right ureter* was enlarged to the size of one's finger tip, and the mouth of the tube was seen blocked by firm, cheesy material; the ureter itself was left unopened, but through its whole course was firm, uneven, and dilated fully half an inch in calibre.

The entrance of the left ureter, and in general the left side of the bladder, presented more nearly normal conditions.

The *prostate gland* was enlarged, especially its middle lobe; on section, there presented a whitish, cheesy aspect, but there was no trace of softening. The *liver* showed a number of small whitish nodules directly beneath the capsule; otherwise the appearance of the organ was normal, although rather pale.

The lower portion of the *ilium*, directly around the ileo-cæcal valve presented a tubercular deposit in the wall of the gut; the mucous membrane at this part was ulcerated, and the peritoneal surface was rough and uneven. The other portions of the intestines presented nothing especial. The *glands of the mesentery* were all either enlarged, hardened, or cheesy. The lymphatic-chain of glands, commencing at the femoral ring and extending as high as the diaphragm and into the fissure of the liver, was in the same condition; this change was more marked on the right side, in both the iliac and lumbar regions, than on the left. The glands in the hilum of the right kidney were likewise changed. The testicles were not diseased.

Remarks.—The origin and course of the disease in the first case seem pretty clearly defined; the gonorrhœal disease extended to the mucous membrane of the bladder, and from thence to the ureter. The inflammation of this tube led to swelling of its mucous membrane, thereby narrowing its calibre. The catarrhal products, not being able to make their exit into the bladder, were retained a sufficient length of time to inspissate; meanwhile, the catarrhal inflammation continued, constantly adding new products to those already retained in the calibre of the ureter, rendering the mass more dense and enlarging the diameter of the tube. The epithelial elements, by close packing, from excessive accumulation, had their vitality destroyed—a vitality, already of a low grade, which is maintained so long as they continue to float freely in the serum. The impossibility of the removal of these desquamating epithelial elements, owing to closure of the ureter, gave the opportunity for the removal by absorption of this serum—nay, we might very truly say, it is pressed out from among the epithelial elements. We have then in the calibre of the ureter a mass of cells undergoing a cheesy metamorphosis.

The backing up and retention of the inflammatory products continue until the pelvis of the kidney is filled with the same materials, and presents the same condition as the ureter, as shown by the specimen. The continuation of the process into the straight tubes of the pyramids is of a like character. When we come to the consideration of the degenerative process, which results in the breaking down of the cheesy mass, occupying the area of the pyramids, there is an additional or new effect to be considered. We are looking now at a series of fine threads of cheesy material, occupying the calibre of fine tubes; these tubes, having a columnar epithelium resting on a pretty firm basement membrane, are abundantly surrounded by arterial vessels, running in a course parallel to their length. These tubes are functioning organs of a high order, not ordinarily much affected by disease, and not very frequently exhibiting degenerative changes; certainly not such degenerative change as that pictured by cheesy metamorphosis.

In fact, from the greater vascularity of the pyramids, we should suppose a cheesy metamorphosis more likely to occur in the less vascularized ureter; in the ureter the effect was distension and stretching of its elastic wall. The foreign product now present in this tube causes, if it has any effect, a reactive inflammation, accompanied by increased vascularity, which may, as a final result, lead to such rapid cell-growth, and thereby rapid cell-death, as to present to us the picture of ulceration. Such changes, however, come only from very great distension, or the long presence of a foreign mass in a tube of such elastic nature as the ureter.

This greater vascularity of the pyramid is a cause of its more rapid destruction; the more highly vascularized organ produces epithelial elements in great abundance and with greater rapidity. The condition of the pelvis and ureter prevents the escape of these inflammatory elements. The continued production of these products tends to distend the straight tubes of the pyramid. The first effect of such a distension must be pressure on the vasæ rectæ and the exclusion of blood from the vascular pathways of the cones.

The degenerative process commences first of all in the materials contained within the tube. These tubes have long since been dead functionally; the anatomical death of the tubular wall and its vascular companion is deferred until later. The fibrous elements, the firmer structures, may be maintained concealed in the cheesy mass, and only again become visible in the subsequent softening which is impending.

The cheesy mass is now a foreign body occupying, but not displacing, the kidney structures. It has long been cut off from its source of nutrition: the cellular elements of which it is composed have had their integrity destroyed by mutual pressure. We know that the condition of softening or fluidity, which nearly constantly results in these cheesy masses, comes about by the simple addition of water to the materials present, without the further development of formed constituents. Whether it is that the shrivelling of the cell-elements and the partial absorption of the molecular detritus, by lymphatic agency, leaves a space—a vacuum, so to say—in the preformed area of the cheesy mass, into which fluid enters, and thereby brings about a solution of the remaining products; or, whether it is that these albuminous products pass over into fluid compounds directly, or perhaps into compounds which have a chemical affinity for the water or serum which is so necessary for their fluidity, remains an undecided question.

Hand in hand with the softening of the purely cheesy materials, viz., the epithelial debris, goes on also the loosening up and finally the melting down of the structures in which the cheesy matter is inclosed, as well as of the tissues immediately adjacent.

The great pressure of the accumulating materials in the tubes so enlarges the area of the pyramids that a strong compression of the cortex, both the inter-pyramidal portion, and that at the base towards the surface of the kidney, comes about. These portions are pressed together, and present, as they do in the specimen, a very thin layer, or wholly disappear. Perhaps, too, the tubes of the cortex may become filled with epithelial elements, which are finally transformed into a cheesy material. We can see the evidence of this enlargement, and of the pressure exerted by the transformed pyramids in the quadrilateral figures which their areas assume.

In the second case, the origin of the disease is less easy to trace; the defective clinical history deprives us of all opportunity of determining at which part the first symptoms were developed.

The presence of the tuberculosis of the mucous membrane of the urinary bladder points naturally, according to the common opinion, to its origin from an original tubercular deposit in that situation, or primarily in the kidney itself. It is quite possible to suppose it was at either one or the other; if the tuberculosis commenced in the kidney the extension of the disease was from above downwards in the ureter; if in the bladder the progression was upwards, as in Case I., although in Case II. the moving cause was not the same.

The authorities on the subject, who speak of this form of destruction of the kidney (phthisis renalis), mention only "an irruption of tubercle beginning at the renal papillæ;" they give no cause for such tubercular deposit, which is now almost universally conceded to have, as its anatomical basis, a cheesy mass or gland somewhere in the body. Whatever, however, is the origin of the disease, the steps in the destructive process are the same: the catarrhal process of the mucous membrane, with the accumulation of the cell elements, is a very essential complication of the anatomical picture, and it is to this part of the disease that we have to look as the basis of the destruction which so constantly follows.

What casts a doubt on Case II. having originated as a primary tuberculosis—I do not say disease—of the bladder or renal mucous membrane, is the entire absence of evidence in the body of the pre-existence of a cheesy mass, which served as the anatomical basis of the irruption of tubercle at either of these situations. The lungs, and the glands at their root, fail to show us this point of development. Everything in the post-mortem examination points to the primary development of disease at or around the kidney, or in its tube of exit, or in the bladder; most probably in the bladder, since the prostate gland is found so much changed.

If the apparently well-established pathological fact is true, that the irruption of miliary tubercle depends, for its anatomical basis, on the pre-existence of a cheesy mass, or on what I think to be an equally sufficient anatomical basis, viz., a catarrhal process whose elements, when absorbed, tend rapidly to a cheesy-metamorphosis, we are compelled to look to the bladder mucous membrane as the part furnishing these elements, as the part which was undergoing a catarrhal inflammation, and furnished to the blood the degenerating elements. What is more likely from the habits of the man, evidenced by the scar of bubo and the scar of the preputial chancre, than that this man suffered at one time a gonorrhœa, which extended to his bladder? If this supposition is admissible, both cases come under one heading.

Looking at the two cases in this light, we have a course for the disease similar to that which the English authors describe as the pathology of Surgical Kidney; we have a complication superadded to the ordinary picture of surgical kidney in the irruption of tuberculosis into almost all the viscera of the body, inclusive of the kidney itself.

The surgical kidney of the English authors, and that form of disease spoken of by Klebs under Pyelo-Nephritis (*Handbuch der Pathologischen Anatomie*, p. 654), differ materially from the cases we are now discussing. Catheterism and an infectious disease are spoken of as the causes of the surgical trouble. Klebs especially alludes to the parasitic (Bacteria) nature of the inflammation, and distinctly states that while it has its origin in the urine-conducting apparatus, there is no continuity of disease between the diseased parts, viz., the bladder and the kidney.

Roberts' Phlegmonoid Abscess of the Kidney, which is to be included under the heading of surgical kidney, certainly presents a picture differing so very widely from the clinical history and the morbid appearances of these two cases as to preclude any relationship.

Authors, so far as I am aware, do not trace the connection, certainly not the steps of the process from the catarrhal process upwards to the destruction of the kidney, with the degree of vividness commensurate with the importance of the disease.

Rokitansky (*Path. Anat.*, vol. ii. p. 208, Syd. Soc. Translation) says, in speaking of this form of (so-called) tubercle of the kidney, that the disease (viz., tubercle)—

> "Generally attacks the testes, prostate, and the lymphatics primarily, and extends from these to the urinary apparatus . . . is commonly viewed as possessing a blennorrhœic character, or as gonorrhœal tubercle; but post-mortem examinations have not established the fact by demonstrating any peculiarity in the tubercular deposit. . . . The disease generally attacks one kidney only in a very extensive degree."

Rokitansky, in disregarding the "blennorrhœic" origin of the disease, at least as one of its modes of origin—it is certain that it is not the sole mode—sought for the evidence of its gonorrhœal dependence in the wrong place. No one, now-a-days, would expect to find differential characteristics in the histology of a tubercle resulting, say, on the one hand, from catarrhal disease of the lung, or on the other hand, from the inoculation of tubercular matter in the connective tissue of an animal. Neither was Rokitansky aware of the power that a catarrhal inflammation has of causing the formation of cheesy masses, as has been demonstrated since his time most ably by Rindfleisch, as well as by others.

Niemeyer (*Text-book of Pract. Med.*, vol. ii. p. 46) adds very little to Rokitansky's description of the kidney. He says "that it is not constantly preceded by pulmonary tubercle; but this disease almost always sets in at a more advanced period of the renal disease."

This second form, he says, is not easy of positive diagnosis, but may with great probability be suspected; its existence receives confirmation if we are able to feel an uneven tumour in the region of the kidney, taken in connection with the occurrence of pus in the urine in the course of a chronic disease of the urinary passages, with now and then blood in the secretion, and the coexistence of an enlargement of the testicle.

Dr. Wm. Roberts (*Urinary and Renal Diseases*, p. 457–467) speaks of this form of kidney disease under the heading of "Primary Tubercle of the Kidneys (Tuberculous Pyelitis)." He states that the disease begins in the kidney, but that it always implicates more or less extensively the excretory apparatus, and extends *downwards* towards the bladder. His description of the kidney is the counterpart of that presented by these two specimens. He says of the pelvis and ureter that "the (tuberculous) deposit begins in the submucous cellular layer," and that this deposit, as well as the mucous membrane, subsequently undergoes the changes ordinarily described. He mentions the closure of the ureter by "this deposit" in the tube. "The disease very rarely runs its entire course without the occurrence of tuberculous deposits in other and unconnected parts of the body."

Dr. Roberts gives a case which he himself examined, and quotes another from the clinique of Prof. Kussmaul of this form of destruction of the kidney, which undoubtedly did not "begin in the kidney" (judging from their clinical histories), as he declares such cases of tubercular kidney do begin. The course of the disease in the two cases which he cites approximated closely to the two cases here given; Dr. Roberts's case was of longer duration than either of my own; further, it would seem to be not unlikely that it might possibly be of calculous origin, as a quantity of earthy matter was found. Passing over the question of the origin of the disease, there appears to me evidence that the trouble commenced in the bladder and extended upwards through the ureter to the kidney. Kussmaul's case gives a distinct statement of its origin in a cystitis in a patient who "took cold in consequence of a severe wetting." Such a clinical history is not in accordance with a tubercular disease of the urinary passages or with a deposit of tubercle in the kidney itself. In this case, the evidence of tuberculization does not come until the lapse of six months from the initial bladder disease.

The method of formation of the so-called primary tubercle of the kidney, which I have given as the result of the examination of these two cases, differs materially from the general and accepted views of this change in the renal organs. The statements that have been put forward in explanation of the morbid picture, divide themselves into two classes; the first, that the disease is the result of a deposit of tuberculous matter, primarily in the renal papillæ, and subsequently in the submucous layer of the ureter, etc.; the second, that the disease may result from the irruption or primary formation of miliary tubercular nodules in the urino-genital mucous membrane, and that an essential element in the destruction of the kidney tissues is the subsequent catarrhal complication (Rindfleisch). I have striven to show why neither of these views is a satisfactory explanation of these cases.

What I wish to render prominent is that the catarrhal process is a pre-existent factor; pathological anatomy does not recognize anything that can be called tubercular, similar to the materials here found occupying the ureter, the kidney, and its pelvis; that the products here found are essentially catarrhal in their origin; that, so long as our present theories of tuberculization hold, the tubercular deposit (miliary nodules) found in the genito-urinary mucous membrane must have, as their anatomical basis, a pre-existent cheesy mass somewhere in the body.

Finally, I think that what we are taught by these specimens is that this is a catarrhal—not pneumonia, for we are dealing with a kidney—nephritis; that this chronic catarrhal disease can cause, by softening, a vomica in the renal tissue; and that the cheesy-metamorphosed mass is, or the catarrhal products themselves alone may be, the anatomical basis of the infection of the system with miliary tubercle—the same picture which we see so frequently in catarrhal disease of the lung.

PHILADELPHIA, 333 S. 12th Street.

ARTICLE VI.

SYPHILIS OF THE LUNG. By L. MCLANE TIFFANY, B.A. (Cantab.), M.D., Professor of Operative Surgery in the University of Maryland.

THE occurrence of syphilitic deposit in the lungs of adults under the form of gummy tumours is at the present time a well-recognized condition. The occurrence of a diffused gummy deposit, an interstitial pneumonia capable of running into syphilitic phthisis, is not so well appreciated in either its ante- or post-mortem language. The following cases appear to be examples of this latter form of disease. The microscopic appearances have revealed nothing distinctive to my eye; on the other hand, the macroscopic aspect is very striking, and in two cases (4 and 5) of those reported led to a careful search for, and a discovery of, the syphilitic antecedents:—

CASE 1.—M. C., æt. 23 years, negress, inmate of Baltimore City Almshouse; first seen March 14, 1876; at this time was nursing her child, a baby aged six months. Child was suffering from congenital syphilis, and died one month later. Autopsy of child showed several gummy tumours in each lung. M. C. had been taking no syphilitic remedies. There were both on body and limbs remains of a squamous eruption; the lymphatic glands enlarged in groin, neck, axilla, and above internal epicondyle of humerus; had lost flesh greatly; had very little milk for baby; was troubled with persistent cough.

Physical examination of chest gave evidence of thickening about middle of each lung, amounting almost to consolidation in left.

Treatment. Mercurial inunction, iodide of potassium in syr. iodide of iron and cod-liver oil, internally. For a time improvement manifest; later, patient became unruly, submitting to treatment very irregularly.

From June 1st decline in strength, with emaciation, progressive. Consolidation of lung tissue increased; cavity became apparent in each lung. In July both sides of chest became very resonant; emphysema; during last three weeks of life respiration almost entirely abdominal—thorax moving but slightly. Occasional diarrhœa during last month of life. Died Aug. 25. Asthenic.

Autopsy (a few hours after death).—External examination revealed great emaciation, and enlargement of glands in situations already indicated. Cranium: nothing of moment. Abdomen: spleen contracted to size of a lemon, with deep cicatrice on convex surface. At one point of cicatrice a small cretaceous mass. Ulcer in cæcum size of half-dollar. Peritoneum, etc., normal. Thorax: heart normal. Glands around bronchi enlarged. Both lungs stiff, white, firm, elastic. Almost entire left lung involved; lower portion of right lung comparatively healthy.

A large cavity in middle of each lung—larger in left. Incomplete septa subdividing cavity. Sinuous tracks extending through stiff lung tissue, and opening under pleura by orifices one-fourth of an inch in diameter in several instances. Tracks ran very irregularly, up and down as well as outwards. Pleura, thickened and white, was raised in bullæ over the track orifices. No pleuritic adhesions. Parietal pleura healthy. Cavities contained white pultaceous matter like broken-down lung tissue; mucous membrane of bronchi inflamed; vessels of lung not traceable through white tissue. The cut surface of the lung presented a smooth lardaceous appearance, unlike either a pneumonia or tubercular deposit. No tubercles found.

CASE 2.—A. R., white, male, æt. 30 years, entered Baltimore Infirmary (date omitted in my notes). Several deep scars on body and limbs. He suffered from nocturnal pains, evident syphilitic disease of various bones. Physical examination revealed induration of upper portion of each lung; small cavity in left. Treated with iodide of potassium, small doses of mercury, tonics, etc. Improved greatly, and was discharged to resume work, seaman. Re-entered Infirmary three months later; condition much worse; died in a few days.

Post-mortem examination revealed general syphilitic disease of osseous system, nodes, etc.

Both lungs were stiff, gray, and elastic. The upper two-thirds of the left lung was occupied by a cavity from which sinuses passed into the lower third. Imperfect septa partially divided this cavity into smaller ones. One or two sinuses traversed the lung tissue to within a short distance of the surface. At these points the pleura was somewhat thickened and white, but not adherent to the chest wall. The right lung contained a small cavity in the upper lobe, not at the apex, however, and from this a sinus passed down into the middle lobe. Within the cranium, abdomen, etc., nothing of interest.

CASE 3.—Negro woman, æt. 60 years; seen only after death. Inmate of Baltimore City Almshouse. Many scars resulting from deep ulceration visible on limbs and body. Bones of the head thickened, and in some places carious. Nodes on humerus right and left; ulna and radius also in each forearm; both tibiæ nodular. Dura mater corresponding to thickened calvarium, red, vascular, an eighth of an inch thick, of the consistence of chamois leather. Thorax: heart more firm and white than usual. Right lung about the size of a closed fist, gray, leathery, firm, non-crepitant, contained no air. Pleura thickened and dry; no adhesions between opposed pleural surfaces. Left lung greatly increased in size, pushing heart over to right side of sternum; no appearance of disease. No tubercles. Abdomen showed nothing of interest.

CASE 4.—W. B., coloured, æt. 23 years. Had led an irregular life. First seen Aug. 27, 1876. Physical examination showed compensative respiration over whole of right lung. Left lung: large cavity in centre. Amphoric voice and respiration. Bronchial râles at apex and base. Œdema of face and upper extremities; many cicatrices scattered over body resulting from deep ulcerations. Acknowledged syphilis. Slight diarrhœa occasionally. Patient very weak and feeble. Treatment ordered: cod-liver oil, iron, whiskey, fresh air and sunshine.

September 6. Discharged by request "to see his friends." Condition unchanged.

10th. Readmitted. Condition much worse. General œdema of subcutaneous tissue everywhere; much weaker. No albumen in urine. Died Sept. 20.

Post-mortem examination twelve hours after death. External inspection showed deep cicatrices, fifteen or twenty in number. Both tibiæ enlarged and nodular. Abdomen: two flat, thickened patches on peritoneum (gummata?). Two small follicular ulcers in ileum, 2 lines in diameter. Liver studded with gummy tumours (8 or 10) of different sizes, the largest ¼ inch in diameter, both in the substance and on surface of that organ. Thorax, right lung: two small gummy tumours in lower lobe, about size of peas. Tissue otherwise healthy. Left lung: large cavity in middle of lung, with stiff walls; from this cavity, both upwards and downwards, sinuous tracks passed into the lung tissue, extending to pleura. Cavity contained a pultaceous white substance in quantity ℥iss. Stiff bands passed across the cavity in various directions. The entire lung was enlarged, firm, grayish-white; very elastic, like India-rubber, bounced from the table when dropped upon it, and weighed 3 lbs. 8 oz. When cut across and washed, the lung retained its shape, showing cavities, etc. The bronchial tubes, thickened and lessened in calibre, opened freely into the central cavity. The vessels, greatly lessened in calibre or entirely occluded, could be traced through various parts of the lung. The pleura, covering the left lung, was thickened, white, and raised into a bleb over the spots where the sinuous tracks through the lung opened against its under surface. At one point only was there adhesion to the parietal pleura, the locality corresponding to the spot where the large cavity (pulmonary) was bounded externally by the visceral pleura only.

CASE 5.—A negro man about twenty-five years of age was admitted to the City Almshouse, and died four hours later. The lungs came into my possession, but I did not obtain a thorough examination of the body. The right lung was healthy. The left lung was increased in size, hard, elastic, and light-gray in colour. The upper half of the lung was transformed into a large cavity, across which ran bands of gray tissue. Many of these bands were vessels still pervious to a moderate-sized probe. Sinuses ran down into the lower lobe. Bronchial tubes opened freely into the cavity. Pleura thickened; no adhesions between visceral and parietal pleura.

This patient had led an irregular life and was believed to have had syphilis. As I did not examine the body for evidences of the disease, proof that syphilis did exist is unfortunately wanting. The appearance presented by the lung was so similar to that presented by the other cases reported as to cause me to class them together.

Not finding other visceral lesion must, in the present state of our knowledge, leave the case doubtful.

Here then are five cases, or, omitting Case 5, four cases, all suffering from the effects of syphilitic poison to a profound degree, as instanced by visceral lesion, other than pulmonary, and all presenting disease of the lung not only similar the one to the other in many respects, but differing decidedly from the usual run of pulmonary pathology. Analysis of the cases shows that in three patients one lung only was affected—the left twice, the right once. In two cases both lungs were diseased, in each the left being more involved than the right. In four cases out of five the left lung was more diseased than the right.

The weight of the affected lung was in every instance increased, except Case 3. In Cases 4 and 5, where one lung only was affected, the increase in weight was very marked, Case 4 weighing 3 lbs. 8 ozs. The same may be said of the size. Where both lungs were affected the increase in size was moderate; where one lung only was affected, except in Case 3, the increase in bulk was great, pushing the heart to the opposite side.

The portion of lung affected was stiff, tough, elastic, resisting pressure, homogeneous on section, and fading off into the surrounding tissues. On section did not collapse. Cut surface not very moist, and appeared similar to subpleural surfaces. Did not contain air, non-crepitant. The entire mass of induration presented the same color throughout—a dull-gray, scarcely at all pigmented. Nowhere was an appearance of vascularity visible.

As the bloodvessels entered the indurated territory their walls became thickened, the lumen diminished and rapidly closed. For a certain distance. as solid cords, the vessels could be traced, soon, however, to be merged into the gray blank. In Case 5 the vessels could be traced as described, differing notably from the other four patients. Here the vessel walls were soft and nodular; in no instance was the vessel patent quite across the cavity.

The walls of the bronchial tubes were thickened and their calibre lessened, the mucous lining inflamed, and the tubes opened by irregular orifices into cavities. Where the induration had not become excavated the bronchial tubes were occluded by thickening of their walls and apparently outside pressure.

There is apparent a tendency to the formation of a large cavity about the middle of the lung rather than towards the base or apex, and from this as a centre irregular paths of ulceration extend through the indurated area. These paths of ulceration may run across as well as parallel to the known direction of the bronchial tubes or bloodvessels. In Cases 1 and 4 the tracks of ulceration opened beneath the pleura by rounded orifices with smooth bevelled edges. Across the cavity passed bands and incomplete septa, subdividing it into smaller compartments all freely communicating.

In Case 2, water poured into the cavity at the apex of the lung flowed from the lowest sinus which opened at the base. The bands and septa were of the general gray colour. The walls of the cavities were gray, ragged, and without any appearance of vascularity. In Cases 1 and 4 the large cavity contained a necrotic portion of the neoplasm.

Adhesion between the opposed pleural surfaces occurred once only (Case 4) at a point where a large cavity opened upon the lung surface. Opposite the openings of the tracks of ulceration the visceral pleura was raised into bullæ, elsewhere this membrane was normal, or but slightly thickened. The emphysema of Case 1 was entirely subpleural.

Cases 1 and 4 showed points of ulceration near ileo-cæcal valve.

Case 1 showed small cretaceous mass (gummy tumour?) attached to spleen; no other cretaceous mass found in either patient. No tubercles recognized in either of the cases. As already mentioned the microscopic examination showed nothing distinctive.

The clinical history of three cases out of the five reported is known. (Cases 1, 2, and 4.)

Case 2 began to improve at once on the institution of treatment, so that his history is one of convalescence from the start. Anti-syphilitic treatment in two cases (1 and 2) was adopted. Case 1 improved for a time. Case 2 was able to resume his occupation. Case 4 came under my care but a day or two before his death; it is to be regretted that even then a line of treatment as in Cases 1 and 2 was not instituted.

Case 3, while presenting numerous signs of profound syphilitic dyscrasia, shows a condition of lung different from any other. I am inclined to look upon this patient as exhibiting a later stage of the same pulmonary disease as that from which the others suffered; the gummy deposit, instead of suppurating or breaking down, has gone on to cicatrize and contract, the function of the affected lung being permanently interfered with.

Although the cases reported are too few in number to permit conclusions to be drawn from them, yet they may with propriety be said to suggest the following opinions:—

1st. There may occur in the syphilized human being, adult, coincident with the period of gummy deposits, a peculiar gray infiltration of the lung.

2d. This infiltration is situated by preference near the middle, rather than the base or apex, of the lung.

3d. The tendency of the infiltrated territory is to break down irregularly, producing a ragged cavity.

4th. The infiltration may exceptionally cicatrize.

5th. The course pursued by the infiltration is influenced by anti-syphilitic treatment.

6th. Notwithstanding the formation of cavities, etc., pleuritic adhesions are rare.

Article VII.

Report of Three Cases of Tracheotomy. By Geo. W. Rachel, M.D., of New York. (Read before the New York Medico-Chirurgical Society of German Physicians, December 18, 1876.)

In each one of the three cases of tracheotomy here reported, the stenosis of the larynx was caused by different pathological conditions. In the first one it was diphtheritic croup, *i. e.*, the laryngostenosis was caused by an exudation that appeared first above the glottis; in the second case it was true croup, *i. e.*, the membranous exudation had its seat in the larynx from the beginning, not having been localized previously in either mouth, nose, or pharynx; in the third case it was so-called pseudo-croup, *i. e.*, an acute laryngeal catarrh, causing suddenly a considerable swelling of the mucous lining and an œdematous infiltration of the loose areolar tissue of the larynx.

The first two cases are of considerable interest, because of the age of the children, both being below two years of age. The first ended in recovery in spite of many adverse circumstances. The third is one of those rare cases in which a patient is suddenly attacked with acute laryngitis, which causes alarming symptoms, defying all therapeutic agents and calling for immediate surgical interference.

Case I.—J. S., aged 18 months, always healthy and strong; had suffered from bronchial catarrh twice, but never very severely.

On Dec. 12, 1875, I was called in the morning to see the boy, and found he had been coughing for a few days, his nose had been running, and he was slightly hoarse. The previous night he became feverish, his cough barking, and breathing impeded, which I found was caused by some obstruction in the larynx. His left nostril was filled with grayish-white exudation, and on the posterior wall of the pharynx there were also a few patches. The palate, uvula, and tonsils, although somewhat reddened and swollen, were free from false membrane. The lymphatics behind and below the left angle of the inferior maxilla were hard, swollen, and painful. Temperature 103°.

I ordered applications of ice to the throat and neck, and injections into the nose every hour of a solution of carbolic acid and hyposulphite of soda, equal parts, in water. In addition chlorate of potassa in solution, and a few doses of the golden sulphate of antimony were prescribed.

P. M. Patient much worse. Vomited several times during the forenoon, but since 2 o'clock he has rapidly grown worse. When I heard the wheezing sound caused during both inspiration and expiration, and saw the anxious features, the blue lips and nails, and noticed the bending in of the ribs and costal cartilages at the insertion of the diaphragm, I became convinced of the absolute necessity of performing tracheotomy. Dr. Lilienthal, who saw the child in consultation later, was of the same opinion. The boy was cyanotic, inspiration was as difficult and slowly performed as expiration. The exudation had evidently proceeded downward towards the larynx, and the glottis was beginning to be implicated. In the nose and at the posterior wall of the pharynx it had not made much progress. The operation was performed under the influence of chloroform. The bleeding was trifling, and, after fixing the canula, the wound was closed by five silver wire sutures. After the usual fits of coughing, during which only blood and mucus, and *no membranes* were expelled, the respiration became quiet and normal. Inhalations of steam and carbolic acid in lime-water were ordered.

13th, 7 A. M. Doing very well; nose appears to be free of exudation, and in the pharynx only ulcerations with but little false membrane were visible. During occlusion of the tube, however, inspiration was almost impossible, and after a wheezing expiration respirations ceased entirely; the laryngostenosis, therefore, was almost absolute. The mother reported that much mucus had been coughed up; one piece, which had been preserved for my inspection, appeared to be a portion of membrane. On closer examination, however, I concluded that it was only partially dried mucus, and it was not until fifty-six hours later that the expectoration certainly contained false membrane. The lungs free. Temperature 102° F. 12 M. Temperature 101°; ordered quinia. 4 P. M. Called in haste, and found the boy almost suffocated from occlusion of the tube. By proper manipulations with a feather, a large plug of dry mucus was loosened and coughed up. The cyanotic appearance of the child was immediately changed, and the breathing became full and regular. Temperature 102½°; lungs free.

14th, 2 A. M. Again called on account of the same difficulty. After half an hour of unsuccessful attempts, I at last succeeded in dislodging the mucous plug. Temperature 103°; lungs free. 11 A. M. Slight roughness of respiration, and some prolongation of the respiratory sound over the upper portion of the right scapula, although percussion failed to detect anything abnormal. Temperature 102½°.

The wound showed no signs of healing by first intention as far as the incision in the superficial parts was concerned, and I removed the two sutures above and one of the three below the tracheotomy tube, since the ulcerations caused by these rendered their further presence useless.

15th, 1 A. M. Again summoned to remove an obstruction in the tube. It was observed this time that unmistakable membranous shreds were mixed with the copious masses coughed up after the removal of the plug. On inspection, I found the posterior wall of the trachea and the entire canal through the soft parts covered with a dense grayish exudation, which appeared at the edges of the wound the next morning, and made the two remaining sutures useless. Accordingly, I removed them. Dr. Lilienthal, in consultation, suggested the propriety of administering $\frac{1}{3}$ gr. carbolic acid every two hours internally, which was done. Plenty of brandy, beef-tea, fresh eggs, milk-punch, Rhine-wine, etc., to be continued. Lungs free.

The general condition of the patient was much improved during the following days. He wanted to get up, and was disposed to play and laugh. After each inhalation, which he took every three hours, he coughed up considerable masses of mucus and membranous shreds. The most peculiar symptom during this time was the appearance at the wound of the nourishment taken. It was noticed that this took place much more freely when the boy was sitting up than when he was in the recumbent position. Furthermore, the child never coughed until the fluid appeared at the tracheal wound. It seemed as if the upper portion of the respiratory tract had been rendered anæsthetic by the exudation covering it. Solid food, although rarely passing into the glottis, proved a source of irritation and incessant cough. The boy was permitted to drink in the recumbent posture, with his head slightly elevated. Probably the regurgitating fluid had less chance then to force its way through the anæsthetic glottis, for it was noticed that only after the last mouthful had been swallowed would any fluid appear at the tracheal opening. This symptom lasted only for a few days; and although later it would now and then appear, it never again assumed threatening proportions. While it continued nutrition was carried on for the most part per rectum.

The wound was free of exudation by the 20th of December, and the healthy granulations springing up from below were cauterized with the stick. This was done while the tube was removed, and was being cleansed and soaked in a carbolic solution. If this lasted long the little fellow showed signs of distress from dyspnœa, which disappeared as soon as the canula was again *in situ.* Curiously enough, the boy was able to breathe naturally when the tube was occluded by a cork or by my finger.

Evidently the cause was not to be sought for in the larynx, but in a change in the lumen of the trachea. The trachea in children, although somewhat larger in size proportionately if compared with that of the adult, is peculiarly adapted to such an occurrence, first by its greater softness and pliability, and second by its anatomical relations and shape. The cervical curve of the vertical column is early developed in children by the efforts at steadying the head; it is strongly marked, more so than in adults. Thus it is that the trachea at the level of the last cervical and first dorsal vertebra has a curve much stronger convex forward than in the adult. The defect caused by the insertion of the tube was just opposite the greatest convexity of the curve, and by the rise and fall of the trachea, which is synchronous with respiration, compression of the soft infantile trachea against the vertebral column in consequence of the lateral tension of the parts was observed, especially because the trachea was partially united to the soft parts. The tension caused upon the larynx was also noticeable, and it has caused a slight permanent deformity of this organ.

At various times I tried the effect of removing the tube, but always had to replace it. The mother was advised to keep the tube almost occluded by a small cork with a side slit. This was only to be removed for purposes of cleansing, and in an emergency.

Towards the end of January the boy's breath became short, and his mother removed the cork without affording him relief, and the little fellow becoming feverish, I was summoned.

Feb. 1. I found dulness over the left scapula, and also anteriorly. Slight râles all over except over the congested lobe, which gave bronchial respiration. Temp. 105¾°. The pneumonia showed exacerbations in the morning, and remissions at night generally. On the fifth day the fever did not follow out this rule, however. The thermometer that night suddenly and unexpectedly rose up to 105⅜°. The pulse 140, and feeble; respirations 60; he was very low. The left lung, by this time, was entirely implicated, and even on the right side there was a circumscribed infiltration, corresponding to the lower two-thirds of the scapula. The next morning the temperature did not rise above 103¼; pulse 144; respiration 50; and on the tenth day the temperature was normal.

14th. Nine weeks after the operation I removed the tube, while Dr. Gorden, who kindly assisted me, put the child under the influence of chloroform. A deep silver wire suture was then introduced, and a small abscess over the hyoid bone, caused by the pressure of the shield, was opened. The wound healed rapidly, and closed permanently on the 20th, ten weeks after the operation. The breathing is quite natural, and only a slight hoarseness has remained. The pitch of the boy's voice, which was very deep before the operation, has been still lowered. This is probably due to the deformity of the larynx already alluded to.

The boy is gaining strength daily, and now (February) weighs about thirty-six pounds, although a slight bronchial catarrh and cough remain.

The second case is that of a girl whom I attended from her birth; the only disease that befell her was an ophthalmia neonatorum, which took a mild course, and ended in recovery.

CASE II.—R. J., twenty-two months old, was seen Feb. 2, 1876, at 8 P. M. She had a slightly barking cough, a moderate nasal catarrh, and sometimes a wheezing sound with respiration. On examination I found the tonsils swollen and red; palate, uvula, and pharynx also turgid and reddened; cervical glands at the angle of the jaw slightly swollen on the right side; temperature 101¼° F. I ordered inhalations of carbolic acid in lime-water, and internally some golden sulphate of antimony.

The next day no improvement was seen, and the child rapidly growing worse, I decided to perform tracheotomy. The child was at the point of collapse. The temperature, which, two hours before, had been over 103°, had fallen to 101°. There was cyanosis, eyes glassy and fixed, and protruding; the pulse thin, irregular, and compressible; respiration very difficult; the diaphragm moving upward with its contractions, the ribs forming a deep indentation instead of expanding. I performed laryngo-tracheotomy in the usual manner. At the moment the trachea was opened the respiration ceased. I immediately introduced the tube, and, by the aid of artificial respiration and other restoratives, she was brought to in a few minutes, and her breathing then became quiet and regular.

The little patient shortly fell asleep, and slept well during the night. Towards morning, however, I was called, and found her suffering from an obstruction in the air-passages. By gentle manipulation I succeeded in loosening and removing a dried-up portion of mucus. Still the relief was not complete, and the suspicion that the exudation had descended into the bronchial tubes proved to be only too well founded. The ribs did not expand normally, and a slight indentation on inspiration commenced again to show itself at the insertions of the diaphragm. The temperature rose to 105° during the forenoon, and never again was below 103° up to the time of death on February 5, at 2½ P. M., forty-five hours after the operation. No autopsy.

Case III.—I. W., 10 years and 2 months old; healthy; not subject to catarrh. Had been hoarse for a week; this had rapidly grown worse during the two days immediately preceding my first visit. On the 27th of October last he had become entirely aphonic, and on the 28th, about 6 P. M., I was called to see him on account of increasing difficulty of respiration, a barking cough, etc. There was considerable obstruction of the respiratory tract, expiration being less difficult than inspiration, but yet somewhat retarded. Deglutition was intensely painful; pressure on the larynx and protrusion of the tongue less so. On inspection a slight swelling of the soft palate and tonsils was visible; the pharynx and especially the root of the tongue with the epiglottis was intensely turgid. Nowhere was there a trace of exudation. Temperature 102½°.

I ordered ice to the throat, and an infusion of ipecac with some opium and steam inhalations. Next morning patient was much better. This did not last, however; he rapidly grew worse, and it was decided to perform tracheotomy. The operation was followed by secondary hemorrhage, which was checked by opening the wound and stuffing it with styptic cotton. The case at this time was not recognized as an acute laryngitis: for, although his vomiting had not raised any membrane, considering the great prevalence of croup and diphtheria on the one hand, and the comparative infrequency of acute laryngeal catarrh with young subjects on the other, the probabilities pointed to an exudative process in the larynx. Lungs free; temperature 103½°. The boy steadily improved.

Oct. 30. On occlusion of the tube he is absolutely unable to breathe.

Nov. 2. His voice is an audible whisper when I put my finger on the canula. No membrane has been visible anywhere during all this time, and as he has now less pain than before when protruding his tongue, a performance which he was at first utterly unable to go through, I asked Dr. J. J. Friedrich to make a laryngoscopical examination. On occlusion of the tube respiration is still considerably obstructed, although there is some phonation. There is considerable congestion of the larynx. The epiglottis is swollen, although no swelling of the loose areolar tissue surrounding the ary-epiglottidean folds is noticed. The vocal chords are less movable, and of a pinkish instead of a pale yellow hue.

On Nov. 9, eleven days after the operation, respiration was normal, and I removed the tube. On 15th the tracheal fistula closed, and on 30th, thirty-two days after the operation and twenty-one days after removal of the canula, the wound had closed. This long delay was evidently due to great destruction of tissue caused by the application of styptic cotton.

The point of greatest interest in the first case is the extreme youth of the patient, which is generally held to be a contra-indication for tracheotomy. The various symptoms which made a postponement of the removal of the tube necessary, and the severe attack of pneumonia while the tube was yet in, also lend further interest to the case.

As regards the last case, the infrequency of threatening symptoms with acute catarrh of the larynx must be prominently kept in mind. Various authors, *e. g.*, Salter, Gibbs, Ruehle, and Merkel, have warned physicians to be careful about the prognosis in so-called pseudo-croup. It should not, they say, be pronounced absolutely favourable, for although acute laryngeal catarrh is an exceptional occurrence, and although catarrh as a rule is propagated from nose and pharynx directly to the bronchi, skipping the larynx, still there are a certain number of cases where a nasal and pharyngeal catarrh is communicated to the larynx and causes alarming symptoms. Happily, it is very rare that these attacks of laryngostenosis mean real danger to life. Still, there are a number of cases where the laryngostenosis becomes a complete one—either from a congestive process or from œdema or from reflex paralysis. Pugin Thornton[1] records two cases where it was impossible to find a cause for the œdema glottidis; the tissues were found to be even paler than normal, and there was not the slightest evidence of catarrh or congestion. The age in this case is also of importance, acute laryngitis being, as a rule, a disease of the adult, and rarely occurring spontaneously before puberty.

The second case—true croup ending fatally—is without special interest, excepting the early age, and it only deserves a place in statistics. There is still some difference of opinion in regard to the question of operating on very young children. As a rule, surgeons are no longer averse to it, but they were until about ten years ago, when Isambert was the first to oppose the views formerly held.[2]

Cohen[3] records twenty-four successful cases in children between six weeks and two years. That below the age of two years the operation is exceedingly unfavourable is shown by the following statistics of recovery of 1300 cases collected by Bourdillat, quoted by Cohen:[4]—

Under 2 years	3 per cent.
At 2 “	12 “ “
From 2½ to 3 years	17 “ “
“ 3½ to 4 “	30 “ “
“ 4½ to 5 “	35 “ “
“ 5½ to 6 “	38 “ “
Above 6 “	41 “ “

The results published by Prof. Wilms[5] are still more unfavourable: while of 335 cases 103 recovered, *i. e.*, 30 per cent. of all operations, all the cases below two years, six in number, were unsuccessful.

Prof. Jacobi,[6] in his report on 67 cases, records 4 cases below two years, all of which ended fatally. He mentions that the first case operated upon by our late lamented colleague, Dr. Krackowizer, was under two years of age, and ended in recovery. I have not been able to ascertain whether this case is included in Cohen's list. I am able to add from my own experience five other cases, among which there are three below two years. These cases, together with my own, are given in the following table:—

---

[1] On Tracheotomy, Phila., 1876, p. 39.

[2] Gaz. Hebd., 1867, p. 460.

[3] Croup and its Relation to Tracheotomy, Phila., 1876.

[4] L. c., p. 23.

[5] Ibid., p. 22.

[6] Am. Journ. of Obstetrics, May, 1869.

Name.	Age.	Disease.	Time of operation till death.	Cause of death.	Operator.
Chas. T.	15 mos.	Diphtheria	24 hours	Blood-poisoning	Dr. Guden.
Thos. McM.	18 mos.	Diphtheria	4 days	Double pneumonia	Dr. Guden.
Jul. S.	18 mos.	Diphtheria	Recovered	. . . .	Dr. Rachel.
Ella G.	22 mos.	Diphtheria with scarlatina.	14 hours	Exudation into bronchi	Dr. Lilienthal.
Rosa J.	22 mos.	Membranous croup	45 hours	Exudation into bronchi	Dr. Rachel.
Abrs. S.	2 yrs. 5 mo.	Membranous croup	19 hours	Exudation into bronchi	Dr. Lilienthal.
Jos. St.	3 yrs. 3 mo.	Diphtheria	34 hours	Pneumonia (right)	Dr. Hackeling.
Ign. W.	10 " 2 mo.	Acute laryngitis	Recovered	. . . .	Dr. Rachel.

Among the twenty-four successful cases previously referred to, are the following two of M. Potain's in the Hôpital Necker, each showing one of two symptoms present in my first case.

> "A boy of sixteen months, upon whom I performed tracheotomy during the period of asphyxia, died one month later of a pneumonia which, as I firmly believe, was caused by an ulceration in the trachea.
>
> "A girl of eighteen months, who was also operated upon during the third stage, recovered. In this case the tube could not be removed until three weeks after the operation. After various trials to remove it, which were always unsuccessful, because the child became asphyxiated with every deep inspiration, it occurred to me that this might be due to a paralysis of the dilator-muscles of the glottis. Accordingly faradization was resorted to, and I had the satisfaction to be able the same day to leave the tube out. The wound healed nicely, and three months after the child was doing well."

Whether faradization would have had the same wonderful effect on the *inspiratory asphyxia* of my little patient, it is now too late to decide. When I discussed with Dr. Lilienthal the advisability of local faradization, it was only with a view to suppressing the dysphagia which was for a short time so disagreeably prominent a symptom. The cause of the asphyxia was believed to have been found in the conditions, resulting in the deformity heretofore alluded to. With the recontinuance of the influx of drinks into the glottis, the question of faradization was dropped.

The pneumonia to which Potain's first patient succumbed, appeared much later in my case, viz., in the seventh week, while in his it came on during the fourth week. The recovery from such a severe illness under such unfavourable conditions is certainly remarkable.

Of the seven cases of croup and diphtheria here reported, one recovered, and of the six fatal cases, membranous exudation in the bronchi was the cause of death in three; of the remaining three, one died of blood-poisoning and two of pneumonia. One-half of the cases, therefore, were spared the agonies of death by suffocation.

These cases clearly lead to the conclusion that the operation should not be deferred by useless temporizing, and that the early age of the child should not be considered an absolute contra-indication.

Article VIII.

Case of Stricture of Rectum and Urethra; Perineal Fistulæ; Recto-urethral Fistula; Fistula in Ano; Probable Spontaneous Rupture of Membranous Urethra; Successful Treatment.

Reported, with remarks, for H. E. Jones, M.D., of Portland, Oregon; by F. B. Eaton, M.D., Acting Asst. Surgeon, U. S. A.

S. B. W., æt. 36, married, and an honest and intelligent mechanic, applied for treatment to Dr. H. E. Jones, of Portland, Oregon, with the following history:

Had enjoyed excellent health until 1859, when he was afflicted with bleeding piles, which did not, however, interfere with his general condition until 1870, when he began to experience pain while defecating and to pass small quantities of pus. After suffering a year, he applied to a physician, who confirmed his suspicion of a rectal stricture. Owing to a serious and tedious pulmonary affection, this stricture was not treated.

Three years later, in August, 1873, while lifting a heavy plank, he suddenly experienced a sensation as if something had given way in the abdomen, and, at the same time, a smarting, stinging sensation deep in the perineum. He worked on until evening, having no trouble with his urine, which continued clear, though the smarting seemed to increase while he was passing it. The next morning, instead of urine, he passed pure blood; and throughout that day micturition was very painful and the urine muddy. In addition, he felt that a portion of the urine passed the wrong way, and the stinging sensation was each time augmented. The perineum was in a few days swollen to the size of two fists, and, six days after the accident, there was a profuse and unintermittent flow of pus from the rectum, which was thereafter continuous. A surgeon was now called, who lanced the perineal abscess; the usual fistulæ resulted.

About a month after the accident, he noticed that urine began to pass *per anum*, and continued up to date, though the bulk of the urine passed through the perineal fistulæ. Patient was very weak and much emaciated, his weight having decreased in two years from 145 to 105 pounds. *Had never had any venereal disease.*

Inspection revealed four fistulous openings in the perineum. On careful exploration with a probe, one was found to connect with the rectum just above the internal sphincter, at which point was a rectal stricture half an inch in length, barely admitting the extremity of the little finger. Introducing a large sound into the urethra, a stricture of the membranous portion was discovered, and a probe introduced through another of the fistulæ impinged upon the sound at the seat of stricture, eight inches from the meatus. This stricture admitted only a filiform bougie. There was severe cystitis. Two days later succeeded in dilating the urethra by means of soft bougies until a No. 7 (Jacques) rubber-elastic catheter could be passed, when the urine was drawn and the bladder washed out, by Keyes's[1] method, with carbolized warm water. Patient was directed to draw his water with the rubber catheter several times daily. This was the sole treatment followed for two months, and, within a month after its inauguration, the urine cleared up and the patient gained twenty-six pounds.

Thus prepared, external urethrotomy was performed in May, 1876. The urethral stricture was first rapidly dilated to admit No. 16 sound (Am. scale), upon which as a guide the operation was performed in the usual manner, the urethral stricture, which proved to be exceedingly resilient, being freely divided. On the same occasion, the rectal stricture was dilated by introducing the forefingers back to back. The urethra now admitted No. 19 (Am.) readily. No catheter was left in the bladder, and only a simple dressing of carbolized lint applied to the wound. A No. 16 conical sound was passed every fourth day, and the bladder washed out as before. The result of this first operation, from which the patient made a thorough and rapid recovery, was the closing of all the urethral fistulæ, with the exception of that connecting the urethra and rectum, urine still passing by the latter.

After his recovery, the washing of the bladder and passing of the sound were dispensed with, all the urine passing through the meatus save the small quantity above mentioned. That there was still connection between urethra and rectum was proved by injecting the urethra with milk and water, and examining a few drops of the fluid found in the rectum under the microscope, when the characteristic milk globules were discovered.

Unfortunately, owing to the tenderness which remained in and around the rectum, it was impossible to use the rectal bougie, and thus maintain the dilation which had been accomplished. Hence the rectum began to recontract, and the fistula in and dependent upon it remained open. In addition, it was found impossible to enlarge the urethral stricture by continuous dilatation beyond No. 16, owing to the severe pain experienced when a sound of larger calibre was introduced; while to this partial stricture was doubtless due the recto-urethral fistula.

A second operation was therefore decided upon, with the intention of dilating the urethral and rectal strictures, and dividing the sphincter in the usual manner for the relief of the fistula in ano. This operation could not be performed until the 22d of November, it being necessary to wait until his general health was sufficiently good.

Second Operation. Ether having been administered, the urethra was rapidly dilated by conical sounds up to No. 19 (Am.). On exploring the rectum, its stricture was found to have contracted so as to admit the finger with difficulty. The fistula in ano, as before mentioned, opened into the gut anteriorly at the superior margin of the stricture, just above the internal sphincter; its external orifice was situated in the raphe of the perineum, an inch and a half from the margin of the anus.

Owing to the great congestion of the parts in its course, it was thought that the usual operation might be attended with an amount of hemorrhage, which the patient could not safely bear; it was therefore resolved to substitute for the knife the elastic ligature. Accordingly a long probe, carefully bent, was introduced through the fistula, and into the rectum, in such a manner as to protrude from the anus. Then passing the left index finger through the stricture, a probe-pointed bistoury was introduced upon it, and the anterior and lateral portions of the constriction incised to the depth of about one-eighth of an inch. The right index finger was next introduced and the posterior portion incised, after which the stricture yielded so far as to admit the simultaneous introduction of the index, middle, and ring fingers.

---

[1] Amer. Journ. Med. Sci., April, 1875.

In order to facilitate the action of the ligature, an incision extending from the external orifice of the fistula to the anus, and through the deep layer of the superficial fascia, was now made, and the elastic attached by silk ligature to the end of the probe, drawn through the fistula, and tightly tied, thus including the entire sphincter ani.

No blood was lost, and after the operation only a simple bandage was applied in the usual manner, and one-eighth grain of morphia given hypodermically. The rectum was carefully washed out twice daily with carbolized warm water. On the fourth day following the operation the ligature had cut entirely through, with the exception of a small strip of fibrous tissue, which was snipped through with scissors; no hemorrhage resulting, while healthy granulating surfaces were left. Case progressed favourably until the eighth day, when erysipelas, accompanied by high fever, began at the anus and afterwards spread over the whole of both gluteal regions. In addition considerable discharge of pus from rectum; the process of repair in the wound ceasing. Quinia, iron, and good nourishment supported the patient until erysipelas and fever had subsided.

No trouble at any time with the urinary organs, all the urine passing through the urethra, and as soon as convalescence began the wound filled up rapidly.

Patient on his feet six weeks after the operation. No. 19 sound could be passed into the bladder without giving pain. Defecated without inconvenience or pain, having perfect control of feces and flatus.

The erysipelas has left behind it so much tenderness that, as before, the use of rectal bougies was impossible; and though the stricture contracted only to a slight degree, the patient was placed under the influence of ether, and the stricture dilated to its full size by the introduction of three fingers. The rectal bougies can now be used, and the patient may be considered cured. He weighs 139 lbs., eats and sleeps well, and works eight hours a day at his trade as a turner.

Remarks. This patient, when first examined, was afflicted with stricture of the rectum, stricture of the urethra, perineal fistulæ, recto-urethral fistula, and fistula in ano. The first operation accomplished the closing of the perineal fistulæ and relieved the urethral stricture; the second resulted in the cure of the urethral stricture and also of the remaining lesions. The successful termination of a case so complicated, and at one time apparently desperate, justifies the employment of the operative and after-measures by which it was consummated.

But the most interesting points are those relating to the etiology and diagnosis of what is believed to have been a rupture of the membranous urethra, which might be termed spontaneous, since it occurred independently of external violence or urethral inflammation; and the urethral stricture, contrary to common experience, was its result and not its cause.

The writer has been unable to find reference in surgical literature to the occurrence, actual or probable, of this accident. Nevertheless, though fully aware of the facts, physical and pathological, which render its probability almost absurd, a careful and conscientious review of the history of the case, together with a cautious cross-examination of the patient, have led to such conclusion. His statements were credited as consistent throughout, while personally he is well known to and respected by the physicians connected with the case.

Among other additional facts elicited, he stated that previous to the accident he had never had any trouble whatever with his urinary apparatus; no private disease; no instrument introduced into the urethra; in brief, he was free from any symptoms save those of the rectal stricture. At a moment when his bladder was distended with urine he endeavoured to lift a heavy plank which was lower than the level of his feet, stooping excessively. It was then that he felt the "giving way" sensation, with the stinging in the perineum, and became for a few moments faint; but recovering himself immediately he attempted to urinate; experienced no difficulty, while the urine was clear. The subsequent formation of abscess and urinary fistulæ were unmistakably due to urinary extravasation; but it is so difficult to conceive how a rupture of the urethra could occur independently of previous inflammation, stricture, or external violence, that the question naturally arises: Could the rupture have occurred in that portion of the vesical wall immediately posterior to the prostate, and the urethral fistula and stricture have resulted from ulceration following the abscess?

The distension of the bladder, the abdominal sensation, the faintness, point to a vesical rupture; while the fact that the sensations attendant upon extravasation were reproduced *only during micturition*, strongly favours the view of a urethral lesion; as does also the statement of the patient, that after the formation of the perineal fistulæ the *flow* of urine from these was at no time continuous, nor was it from the rectum, but only when the sphincter of the bladder was relaxed and the urine felt to enter the urethra. Again, all the urethral symptoms were present from the first; as pain when micturating, the sensation of extravasation, etc., which would have been absent up to the time of the bursting of an abscess into the urethra. The entire absence of any symptoms of suppuration, or of inflammation of the prostate, exclude the possibility of abscess of that organ.

It is clear, that, admitting the existence of a vesical rupture, it must have closed spontaneously, for the closure of the urinary fistulæ was readily accomplished subsequently by the restoration of the normal calibre of the urethra. The stricture, as seen and divided during external urethrotomy, included the posterior two-thirds of the membranous portion quite back to the prostate, and the difficulty experienced in passing the sound through the prostatic portion seemed to indicate that this was also contracted. The position and great resiliency of the stricture may be cited as pointing to its origin from rupture.

The above are some of the more obvious reasons establishing the existence of a lesion perhaps unique, and, viewed in connection with the general history and course of the case, such a conviction is irresistible; but admitting this, and that it originated independently of previous stricture, inflammation or trauma, the difficulty still remains of determining adequate, predisposing and immediate causes. As to the predisposing causes, those must be sought capable of weakening the urethral wall without giving rise to any appreciable subjective symptoms of inflammation in or near them, since these were absent up to the time of the accident. It is impossible here to ignore the agency of the rectal stricture and its attendant symptoms. The patient stated that he was for three years obliged to strain excessively during tedious efforts to accomplish defecation. Could not this have been capable of causing attenuation of the membranous urethra? Such a view appears the more plausible when the really considerable force brought to bear upon the organs of the pelvis by the contraction of the diaphragm and abdominal walls, and the comparatively limited mobility of the membranous urethra, are duly considered.

The last is the least movable portion of the canal, owing more especially to its firm connection with the pelvis by means of the two layers of the deep perineal fascia, while the prostatic urethra is susceptible of some change of position especially when the bladder is distended. Hence any considerable descent or retrocession of the neck of the bladder, either from pressure from above, or traction by a distended and prolapsed rectum, should tend more or less to stretch and attenuate the membranous urethra. The condition of dragging upon the base of the bladder is necessarily present during violent attempts of defecation; and must have existed to a great extent in the present instance, the patient remarking once that it seemed on such occasions as though the attempts would result in the escape of the bowels from the abdomen.

The conditions of descent and retrocession of the vesical neck were, it seems, peculiarly fulfilled at the time of the accident, for,[1] "the long axis of the distended bladder is inclined obliquely upwards and forwards from the base to the summit, in a line directed from the coccyx to a point between the pubes and the umbilicus. In being gradually distended, the bladder curves slightly forwards, so that it becomes more convex behind than in front, and its upper end is by degrees turned more and more towards the front of the abdomen." It will be readily understood that this state of anteflexion must have been increased by the exaggerated posture taken by the patient, for in stooping, the hands are approached to the ground through flexion of the spine and knees, rather than that of the pelvis upon the thighs, the pelvis being inclined forwards much less than would be supposed. The rationale then of the accident is conceived to be this: The force brought to bear by muscular contraction and crowding of the abdominal cavity in stooping upon the distended and anteflexed bladder, acted in the direction of its long axis, *i. e.*, downwards and backwards, and resulted in the depression and retraction of its neck; the same condition also resulted from a pressure, in the same direction, of the contained urine upon the internal surface of its base.

---

[1] Quain's Anatomy, 7th ed., vol. ii. p. 945.

It is probable that this condition was suddenly increased by the giving way of some portion of the areolar or fascial attachments of the bladder, the consequence being a small transverse rupture of the floor of the membranous urethra at or near its junction with the prostatic portion; the tonicity of the vesical sphincter being for an instant overcome by the shock, a small quantity of urine entered the urethra and was extravasated. The last statement is supported by the fact that subsequently, though the patient could ordinarily control the sphincter, a sudden jolt would cause its momentary relaxation and an escape of urine.

In conclusion, it is interesting and instructive to review the clinical history of this case, and trace the chain of lesions in their order of sequence as the results of a few internal hæmorrhoids, which, giving rise by ulceration to a rectal stricture, acted as the primary cause (admitting the above explanation) of all the ills attendant upon urinary extravasation. The rapid and bloodless action of the elastic ligature in the relief of the anal fistula is an additional testimonial, to those already recorded, of its great usefulness, under certain circumstances, as a substitute for the knife.

PORTLAND, OREGON, March, 1877.

ARTICLE IX.

A CASE OF PURULENT PELVIC EFFUSION THAT OPENED SPONTANEOUSLY INTO THE VAGINA. By WALTER F. ATLEE, M.D., of Philadelphia.

ON the 21st of April I was called to Bethlehem to see the wife of Dr. S., on account of her extreme illness. I found the patient with cool wrists, pulse 120, and very feeble, and a bluish tint on the lips and mouth. She was suffering great pain, for the relief of which she insisted upon inhaling chloroform. She had been kept under the influence of the chloroform, for one week, more or less of the time. The quantity already consumed was over two pints.

On the night of the 3d of April, this lady, who was pregnant from the latter part of December, after having undergone the day before much fatigue from long walking, had a miscarriage, with considerable pain but not much hemorrhage. She got along very well until the 9th, although with a very poor appetite, when she was taken with very severe pain in the pelvis and sickness of stomach. This sickness had not been relieved notwithstanding a great variety of treatment. The pain the patient said was beyond endurance; it had gone from the pelvis, and was at the time of my visit referred to the pit of the stomach. The evening before I saw her she had had a chill, followed by fever and copious perspiration. The front of the belly had been blistered; injections and a Seidlitz powder had been used to free the bowels; opium had been employed in various ways to relieve pain, and for the relief of the obstinate vomiting champagne was being used at the time of my arrival, but with no better effect than many other things tried before.

Pressure over the belly showed little or no increase of sensibility. The finger passed into the vagina, it was found to be very hot; the cervix was soft, open, and had all the characters of recent abortion. Back of the vagina, and descending about one and a half inches below the cervix, a mass was felt like soft dough. Examination by the rectum showed the same mass placed in front of it, but it felt harder in this position. The diagnosis was, a collection of the products of inflammation, already to some extent, as shown by the chill, purulent, situated between the vagina and the rectum, that was about to open itself into the vagina.

It was recommended to stop the chloroform, to use McMunn's elixir of opium according to circumstances, to cover the abdomen with hot poultices of ground slippery elm and corn meal, to rub over the pit of the stomach mercurial ointment with extract of belladonna, to avoid any movement of the bowels if possible, and to keep the patient upon a liquid extract of meat with iced brandy and champagne. It was recommended also to use an occasional dose of aromatic spirit of ammonia, and regularly every four hours twenty grains of salicylic acid in three drachms of the solution of citrate of ammonia. The next day Dr. S. wrote me as follows:—

"Last evening, about nine o'clock, my wife felt like passing her water; so we put the bedpan under her, when she vomited slightly, when the abscess broke in the vagina and discharged over a quart of very bad smelling pus of a dark colour and rather thin. She very soon felt much better, and slept very well nearly all night. To-day she is doing very well; a little weak this afternoon; I am continuing the brandy and ammonia, salicylic acid, etc. The soreness and sickness at her stomach are much better. This afternoon she felt it very acutely for a little while, and she vomited only once to-day. She took ten drops of McMunn's elixir last night, and I will give her ten to-night, and repeat it in an hour if she does not rest, but I think from present appearances she will sleep well to-night. Her pulse is about 110, and her temperature $98\frac{2}{5}°$." . . .

In answer, I advised the doctor to continue for a while the use of salicylic acid, to give one-half grain of conium every day, to carefully regulate the diet, to keep the patient quiet in bed, and *not to consider her well until the second menstrual period was over*, no matter what the symptoms might be, nor how well she might feel.

On the 27th Dr. S. wrote: "I am happy to inform you that my wife is improving perceptibly now: her appetite has improved somewhat; day before yesterday she ate a little panada, and yesterday again a little cracker soup; to-day a fresh tomato and part of a squab, with a relish. She is still weak, but stronger than she was three days ago. Her temperature varies from 95° to 100°, not often over 99°; her pulse from 96 to 104, and soft and regular. About twice a day she has discharges from the abscess of about one to two ounces. Her bowels are better; yesterday she had one passage; not any to-day. She is still taking six gr. quinia a day with salicylic acid, elixir opii and the conium ($\frac{1}{2}$ gr. of the extract), and about twice a day I inject the vagina with salicylic acid. To-day she looked out of the window, and saw the green leaves out, and was much astonished at it; before this she took no interest in anything. I am very much pleased with her condition, and only hope she will have no relapse."

This case is published for the reason that the pelvic purulent effusion opened into the vagina, and without any surgical interference. In an article on Pelvic Effusion, in the last number of this Journal, the author said that he has never seen spontaneous discharge through the vagina, nor, from the anatomical positions and relations of this canal, would he ever anticipate such a thing.

In two cases now under my care in this city, in one the purulent discharge came first from the vagina; after a time it ceased, and when I first saw the patient, it was coming from the rectum, the anterior orifice of the abscess having closed. In the second case, there is a large quantity of pus coming with the urine as well as from the rectum; it began to come first from the bladder.

The opening of these purulent collections into the vagina, in the experience of every one, is so much better than any other, that the surgeon, unless very confident it is about to take place spontaneously, should interpose to cause it; and, after it has taken place, he should exert himself actively to keep it open. This appears to me to be the advice sought to be given by recognized authorities. Bernutz and Goupil say: "When suppuration has taken place in the purulent variety of pelvi-peritonitis, and symptoms of hectic fever have supervened, it is generally admitted that an opening for an escape of pus must be made. The condition of the patient is, indeed, under these circumstances, so serious, that we should be justified in resorting to almost a dangerous proceeding to rescue her from imminent death."

The same advice is given by Courty, whose *Traitê Pratique des Malades de l' Uterus et de ses annexes*, is, so far as my knowledge extends, the best treatise on such subjects ever published. Dr. Thomas says that "when the patient is suffering grave constitutional signs from the abscess, the question of the propriety of interference resolves itself into this: if the pus can be certainly, easily, and safely reached, it should be evacuated. Should the abscess be deeply seated, on the other hand, so as to make the operation difficult and uncertain, it would expose the patient to hazards greater than those attendant upon delay." The writer of the article above referred to, I take it, does not differ with Dr. Thomas, the chief American authority on these subjects, in regard to the advisability of having the abscess opened, and opened into the vagina, but in maintaining that "the pus can always be certainly reached." On this point my own experience would lead me to side with Dr. Thomas.

I feel that it would not be right to leave this subject without some expression of the obligations owing to Dr. Brickell for his valuable paper; most particularly for that part of it relating to *serous pelvic effusions.* Peri-uterine inflammation, which expression Courty adopts to designate the affection of which pelvic effusions are one of the results, and which has the great advantage of prejudging nothing in regard to the exact seat of the disease, as does *pelvic cellulitis, peri-uterine phlegmon, pelvi-peritonitis, etc. etc.*, is a very common affection. According to Courty, one-third of all uterine affections are of this kind. Whether Dr. Brickell's views in regard to pelvic serous effusions will bear the results of further experience, we must wait to see. That topical applications and internal remedies have no influence on these effusions, and that they should always be evacuated *per vaginam* by a surgical operation, may be questioned; but no one can question the frequency and gravity of these pelvic affections, and the value of a serious and energetic contribution to their literature such as the paper now spoken of.

Article X.

A Case bearing upon the Argument from Pathology as to the Function of the Cerebellum.

By James Tyson, M.D., Prof. Gen. Pathology and Morbid Anatomy at the University of Pennsylvania; one of the Physicians to the Philadelphia Hospital, etc.

A. B., twenty-five years old, a seaman, and born in Germany, was admitted to the Philadelphia Hospital January 15, 1877. He had syphilis, with secondary symptoms, eight years ago, and says also that he suffered an attack of sunstroke four years later.

On admission he complained chiefly of pain in the occipital region, the pain being described as "dull" in character, and more or less constant, but subject to exacerbations. There were also persistent vertigo, staggering gait, and a *disposition to fall or pitch forwards.* The latter soon became a marked symptom, and was graphically described by the patient as a sensation as though a heavy weight lay in the front part of the head, or his head was too heavy, and tended to fall forward and downward on his breast. There was some dulness of intellect, but never unconsciousness, and he would always answer questions, complaining bitterly of the extreme discomfort and pain in the head. General sensibility was unaltered, and muscular power remained, there being only the staggering gait and the disposition to fall forward alluded to. There was occasional nausea and vomiting, and obstinate constipation.

In view of his venereal history he was put upon iodide of potassium and bichloride of mercury on January 24. These were continued, with supporting treatment, for a month, when, his mouth being sore, the specific treatment was omitted. Blisters to the back of the neck were also occasionally used.

On the 29th of January an improvement is noted, but he soon relapsed into his former condition, and lingered until May 18, 1877, when he died.

The post-mortem examination revealed no obvious lesions of the thoracic and abdominal viscera except an atheromatous condition of the transverse portion of the arch of the aorta.

The brain weighed 48½ ounces, and its substance appeared normal. The dura mater, however, was much thickened at the base, particularly on the left side, and between the cerebellum and the posterior lobe and a part of the middle lobe of the cerebrum, involving the entire left half of the tentorium, lay a flat tumour averaging one-eighth of an inch in thickness. It was dense, and of a grayish-brown colour. The corresponding right side of the tentorium was also somewhat thickened. Thin sections, carmine-tinted, were examined by the microscope, and found to contain mixed elements of a round and spindle-celled character. These elements, at first thought to point to a sarcomatous nature, I believe to be simply those of an inflammatory thickening of unusual degree.

Remarks.—I was much interested in the phenomena and pathological anatomy of this case, from the bearing it seemed to have upon the function assigned by Magendie to the cerebellum as a centre of *forward* movement, in contrast with the corpora striata as centres of *backward* motion. It was observed by him that when the cerebellum was removed or deeply wounded, the animal moved backwards as if impelled by an irresistible impulse. Similar conclusions followed the freezing experiment of Dr. B. W. Richardson, of London, who ablated the function of the cerebellum by freezing the organ in pigeons, although Dr. Mitchell, of this city, arrived at opposite conclusions in similar experiments. Prof. F. G. Smith, in assisting whom, several years ago, I repeated many times these freezing experiments, used to suggest that our own eminent physiologist had mistaken the phenomena of the stage of reaction for those of ablation. For in our experiments, in all instances where the cerebellum was frozen, and therefore practically ablated, the bird tended to move backward, and even turned backward somersaults; but after the cerebellum commenced to thaw, and the stage of reaction set in, the same bird would tend to run and to turn over forwards; and to drop its head or peck with its bill. So, too, when we froze the anterior of the brain, including the corpora striata, thus giving the brain over to the cerebellum, the animal lowered its head and inclined to run forward, and even to turn forward somersaults. But when the brain began to thaw, and the stage of reaction to set in, the corpora striata again acquired the ascendant, and the bird inclined to backward somersaults.

In the case of my patient there was a tendency of the head to fall forward, and of the body, in walking, to pitch forward. This could be accounted for on two suppositions; one supposing there was some lesion, as a clot or tumour, in the corpus striatum, ablating its functions, and giving the man's motions over to the cerebellum; another, a hypersensitive state of the cerebellum, corresponding to the stage of *reaction* in the experiment of freezing that organ.

The former could not be the case, as no lesion was found in either corpus striatum. The second supposition is by no means unreasonable, as there were signs of marked meningitis in the thickening which characterized the membranes not only in the vicinity of the tumour, but also over the base of the cerebellum, and in the membranes between the cerebrum and cerebellum. The tumour itself, from its flatness and probable slow growth, could hardly have had much influence in deranging, by pressure, the functions of the cerebellum. Such action would indeed have been in the opposite direction; and it is, perhaps, only as a part of the extensive area of meningeal thickening, and the necessary hyperæmia, that it contributed to the result.

It is scarcely necessary to state that the case also affords confirmation to the view now generally held, that the cerebellum is also a centre of co-ordination of muscular movement.

ARTICLE XI.

CASES IN PRACTICE. By GEO. R. C. TODD, M.D., of Barnwell Court House, South Carolina.

Case of Ligature of the Left Common Carotid Artery below Omo-Hyoid Muscle; Operation successful.—Mr. Wm. R. H., about twenty-five years of age, was shot in the neck on the night of the 7th of February, 1876. The pistol ball penetrated the internal jugular vein, near the bifurcation of the carotid artery. Bleeding was arrested by pressure, and the young man sent home, a distance of ten miles, three days afterwards.

I did not see him again until sent for on the 22d of same month, when I discovered an aneurismal tumour, rather larger than a turkey's egg, implicating both the internal and external carotids, and characterized by the impulse, thrill, and murmur common in such cases.

Two days afterwards (February 24th) I proceeded to operate, assisted by Drs. S. and W. Hay, Hazel, and Stoney.

The usual incision parallel to the sterno-cleido-mastoid was made, after placing the patient under the full influence of chloroform; the skin, platysma myoid, and cervical fasciæ divided by an incision of some four or five inches in length. the carotid sheath opened just below the obliquely-transverse omo-hyoid, and a silk ligature (not carbolized) passed around the vessel. At this stage all of the above-mentioned physicians carefully examined the effect of pressure with the ligature, and found the distal tumour greatly reduced in size, and that no nervous tissue was included. It was then tied, and an end of the ligature left external to the wound.

The face became immediately ghastly pale, and no pulsation could be detected in the artery above the ligature; but no other noticeable symptom occurred. Within an hour, and to this date, a feeble pulsation of reverse blood supply to the superior thyroid artery can be felt. No untoward symptoms occurred afterwards. The ligature came away about the forty-fifth day; the patient has remained in comparatively good health, and the tumour has long since disappeared.

Case of Extirpation of Eyeball for Melanotic Cancer; no return of the disease for eighteen months.—I was called about the first of July, 1875, to visit Mrs. Christina McNabb, native of Scotland, on account of disease of the eye. She had been blind in the right eye for several years; and for almost a year previous to my visit had suffered with severe shooting pains in the orbital and supra-orbital region.

On examination I found dark tuberous projections of the sclerotic, and a dark mass occupying the cavity of the eye behind the iris. In the course of ten days I re-examined the eye, and found the mass had advanced to the cornea, which was fissured and oozing a little blood. On my first examination I diagnosed melanosis, but was almost deterred from operating by the gloomy prognosis made in such cases by best surgical authorities. However, after fully acquainting the family with my doubts of its eventual success, I proceeded to extirpate the organ, assisted by Dr. Robert L. Hallowquist, of this place.

After cutting the outer canthus, the ball was transfixed with a double hook, a circular section of the conjunctiva and orbital muscles made, and the eyeball removed. The hemorrhage was arrested by stuffing the cavity with lint cotton saturated with Monsell's solution.

Two days afterwards the cavity was cleared as well as possible by the knife and scissors, and painted with pure bromine to disintegrate the remaining tissues to a creamy consistence.

A section of the ball revealed that it was full of a black pultaceous matter; but no microscopical examination was made, as I had no instrument. After-injections were made of chlorinated solutions, tannin, zinc, etc.

All orbital pains ceased after the extirpation of the eye; her health has much improved; she has had no return of the disease up to this date (March 4, 1877), and still resides at Barnwell Court House.

ARTICLE XII.

ACCOUNT OF A WORM (DRACUNCULUS, OR FILARIA LOA) REMOVED BY A NATIVE WOMAN FROM BENEATH THE CONJUNCTIVA OF THE EYEBALL OF A NEGRESS AT GABOON, WEST AFRICA, WITH A BRIEF HISTORY OF THE PARASITE, AND PROFESSOR LEIDY'S DESCRIPTION OF THE SPECIMEN. By THOMAS G. MORTON, M.D., Surgeon to the Pennsylvania Hospital.

In October last I received a letter from the Rev. Dr. Nassau, a missionary at Gaboon, a trading station in West Africa, about one hundred miles below the equator, stating that he had forwarded me a little worm which had been removed from the eye of a native woman; and that although he had been very many years in that country, and had often heard of the parasite, this was the first specimen he had been able to get hold of. The note is as follows:—

"I send you a thread-like worm, which has been preserved in gin, and doubt whether you have seen it in America. When I first came to Africa, in 1861, I heard of worms in the eyes of natives, and in the eyes even of white foreigners. Even when people came to me with swollen eyes, and said there was a worm in the eye, I did not believe it; after a few years I had the same form of swollen eye myself; still did not believe in the parasite. Before I went to America in 1871, I was fully convinced I saw the worm wriggling under the skin of one of my fingers. In America I felt some of the symptoms of its presence. Since my return here in 1874, I have seen the worm again under the skin of my own fingers and the fingers of others; and a few months ago in the skin of my left lower eyelid. Using a glass, I seized it with a forceps, and cut at it with a scalpel, but it wriggled away across my cheek. An English trader, Captain Stone, living near me up the Ogowe, was afflicted for months with what he called neuralgia in his head. He described the pain in his eye as unendurable. Finally a worm was discovered wriggling under the conjunctiva of the eyeball, making directly towards the cornea. A native rubbed into his eye the juice of a plant which I think I recognize as a maranta. The captain said the juice was severe, burning, but not blistering. The worm disappeared, returned, and was extracted by a native, using a thorn as a needle. The worm was thrown away. When I heard of it, I protested, and begged that any other worm found might be retained. A few weeks afterward, a Mr. Woodward, a trader at the same place, gave me the worm I send you, which he said a native woman brought to him, she having taken it from the eye of another woman. My own worm I have never observed in the eyeball, but always in the eyelids, hands, or fingers. The symptoms are—swelling; the skin becomes tense, hot (not inflamed), very itchy, and it is impossible to refrain from rubbing the eye or hand; at once the swelling rises, harder and harder. The eyes involuntarily weep, and then become inflamed—but the latter, I think, only from the rubbing. In the eye, in the line of the worm's track, at frequent intervals, are felt sudden stinging pains, like neuralgia; the constant sense of tension and itching are unendurable, but I have dreaded, as the sharp pain of one sting died slowly away, to await its repetition, which I knew would follow in a few minutes. This stinging pain I have not felt in the fingers, but in the centre of the palm of my hand, and I do not remember to have felt it in both hands and eyes at the same time, nor to have seen more than one worm at a time. I think I have observed the stinging pain worse at night. The worm never stays, with all these effects, more than a day or two at a time, and may not be felt for two weeks again. A small pocket lens shows me a break in the skin of the worm I send you, about the middle, where the thorn of the native woman probably pierced it. I observe also a large and a small end, which are head and tail, unless the worm broke in extracting it. It is the first one I have seen, and I suppose we imbibe the parasite through the water. There are no Guinea worms on this part of the coast; they are at the Accia coast, and Cape Castle in Asianti."

I at once sent the specimen to Dr. Leidy, who, under date of Jan. 13, 1877, wrote me as follows:—

"I received your note, together with the vial containing the little worm and the accompanying letter of Dr. Nassau. The history which the Doctor gives of the worm, and the character of the specimen, lead me to suspect that it is the species noticed in Leuckart's 'Menschlichen Parasiten,' under the name of *Filaria loa*, of Guyot, and in Cobbold's 'Entozoa,' under the name of *Dracunculus loa*.

"Our knowledge of the characters of *Filaria loa* is very imperfect, and, unfortunately, the condition of the worm sent by Dr. Nassau is such as not to enable me to render our information more complete. The specimen is contracted, dark-brown, opaque, hard and rigid. It was probably dried before placing in the gin. I at first took it for a short, dark hair. From a rupture near the middle, as indicated by Dr. Nassau, a loop of the intestine protrudes.

"The worm is 16 mm. long, cylindroid, and tapering towards one end. I have been unable to distinguish, with certainty, between the mouth and tail ends. The thicker appears to be the former; is rounded, and presents a prominent papillaform, unarmed mouth. The narrow end terminates in a minute conical thickening of the integument. The thicker end measures 0.3 mm. wide; the middle of the body 0.25 mm.; and the narrower end one millimetre from the extremity 0.175 mm. wide. The integument is thin, and very tough. Within this there is a comparatively thick brown layer of longitudinal muscular fibres. The intestine appears to be straight, but a distinction of parts I could not detect, nor could I find an anal aperture. About one millimetre from the thick end there is a slight prominence, from which striæ extend inwardly towards the intestine, and appear to indicate a lateral outlet; but of its character I can say nothing.

"I hope that your friend, Dr. Nassau, may be able to procure a better preserved specimen of the worm."

Cobbold, under the head of "Dracunculus loa," writes: "These worms are identical with those described by Guyot as dwelling beneath the conjunctiva of negroes at Congo, and the Gaboon region generally."[1] Davaine, referring to La filairie de l'orbite, has reported several cases similar to the one sent by Dr. Nassau. Guyot reports[2] that negroes of that part of Africa are subject to two kinds of eye inflammation, one which readily yields to treatment, the other resists all treatment.

"I observed, said this surgeon [Guyot], after several examinations upon the globe of the eye of a negress, a furrow in the conjunctiva like a varicose vein, which induced me to make small incisions in order to relieve the engorgement. Having attacked with the point of a lancet the apparent vein, was much surprised to find the furrow disappear. The patient told me immediately that she felt something creeping in her eye, and that the movement was deep. I suspected then that this was nothing else than a '*ver ambulant*,' which appears sometimes under the conjunctiva, and sometimes penetrates the posterior part of the eye. I asked many negroes if they were subject to worms in their eyes; they answered that this malady was frequent in their country, and that it was '*un loa*.'"

Guyot, who returned to this place in 1777, attempted to extract the worm by an incision in the conjuctiva, but when he was about to seize it with the forceps, he found he could not succeed; and on another occasion he employed a surgical needle of medium size, with which he pierced the conjunctiva where the worm was located; by this means he lifted the worm up and extracted it. In five cases where Guyot performed this operation, in only two cases did he succeed in getting hold of the worm.

---

[1] Entozoa, London, 1864, p. 388.

[2] Davaine, Traité Des Entozoaires, Paris, 1860, p. 750.

According to Davaine, M. Lestrille, Surgeon to the French Marine, reported to MM. Gervais and Van Beneden the following case:—

> "On the 14th Aug. 1854, a negro asked me to extract something which he said was moving in his eye. He had frequent winkings, a sensation of some strange object in the upper eyelid, and only since the morning had he had pain; the conjunctiva was injected, and lachrymation was free at the upper part of the eyeball towards the external angle, the conjunctiva was elevated by a flexible body which extended itself in a transverse direction; at first the body did not seem to move, but lifting it up with a forceps, a creeping motion could readily be perceived, an incision was made and the worm easily seized and removed."

This parasite "has been observed by Clot Bey in a negress who had come from the town of Monpox, situated on the banks of the river Magdalena; by Sigaud, who saw one in the eye of a negress in Brazil; by Blot at Martinique, who saw two in a negress originally from Guinea; by Banjon, who met with one in a little negro girl who had come from Guadeloupe; by Mongin, who found one in a negress who had been living in the Island of San Domingo; and by Lestrille, who removed one from beneath the conjunctiva of a negro who came from Gaboon." Thus, according to Cobbold, the parasite "appears to enjoy a tolerably wide geographical distribution."[1]

From all accounts it appears that the worm sent by Dr. Nassau is identical with the "Loa" described by Davaine, and also by Cobbold. The description given by Dr. Leidy, so far as I can learn, is the first accurate account of the worm; and the specimen is probably the first brought to the United States. The observers have been few, and nothing on the subject has recently been published.

ARTICLE XIII.

SUPRA-PUBIC LITHOTOMY. By C. W. DULLES, M.D.; WITH REPORT OF A SUCCESSFUL CASE, by E. F. STARR, M.D., of Nacoochee, Ga.

NEARLY two years ago there appeared an article upon this subject in the *American Journal of the Medical Sciences* (July, 1875, p. 39), in which an attempt was made to set the merits of the operation in a somewhat better light than they have heretofore enjoyed. Following this, I have had the pleasure of receiving a number of letters, some narrating hitherto unreported cases, and others indicating that certain of the views then expressed met the approval of those who read them. Among these letters was one from Dr. E. F. Starr, of Nacoochee, Ga., who wrote that he had a patient upon whom he must operate, asked for further elucidation of some of the statements in the article alluded to, and subsequently performed the

[1] Cobbold, Entozoa, p. 388, London, 1864.

supra-pubic operation with perfect success, and sent me a full report of his case.

The report, with his consent, I now present, almost in his own words, and wish to take the opportunity to add a few remarks to what has been already published in regard to the method of operating.

CASE. Mr. ——, æt. 35, a large athletic man; had been an invalid for the last two or three years, but thought he had felt symptoms of stone for twelve years; for two or three years had been subject to occasional attacks of cystitis, setting in with shivering and resulting in pyrexia and difficult micturition, which caused him a great deal of suffering; under judicious treatment, he had for the last two or three months escaped these paroxysms and improved in general health, so that at the time of the operation he weighed two hundred pounds.

On the 6th of May, 1876, with the patient under the influence of chloroform, I proceeded to perform *supra-pubic lithotomy*. The patient was laid upon his back on a low couch, with his feet hanging down and resting on the lower round of a chair, while I sat by his right side and made the first incision from above downward. As I expected the abdominal parietes to be thick, I made my cut about four inches in length.

Some small arterial branches spouted a little blood, which was carefully sponged away, and, before entering the pelvic cavity further time was given for the general oozing to cease. After this, using the finger as a guide, and carefully slitting the tissues as I proceeded, the bladder wall was reached, the peritoneum being entirely avoided.

The feet were then elevated to the top of the couch, a sound introduced through the urethra, and the bladder raised up between the lips of the incision. The amount of fatty tissue enveloping the viscus made it somewhat difficult to denude; but, as the peritoneum had been avoided. this was not deemed indispensable, and when fairly cleared it was seized with a tenaculum, punctured just below with a sharp-pointed bistoury, and then incised to a sufficient extent with a Blizard's knife upon a grooved director.

The bladder had been ordered to be emptied before the administration of the anæsthetic, but the kidneys being in a very active state from the previous free use of diuretic and demulcent drinks, and the time required to produce anæsthesia having been considerable, in addition to that consumed in making the incisions, some urine was found to have accumulated, and a part of it escaped through the external wound. But as this was pretty well filled by the bladder as it was held up, the urine passed freely out.

The finger was then introduced and the stone brought out upon its palmar surface. It was smooth, of a flat oval shape, and weighed one ounce and one drachm.

The thickness of the abdominal walls made the wound appear formidable, and its closure promise difficulty. This, however, was not so great as was anticipated.

At this point of the operation I departed from the plan proposed in the article on Supra-pubic Lithotomy, in the *Am. Journal of Med. Sciences* for July, 1875; and, instead of closing the bladder alone by the Lembert suture, I *closed both the bladder and the parietes of the abdomen at once* by that suture. That is to say, I passed a silver suture down through the wall of the abdomen into the cavity of the bladder, included a part of this and brought the wire back through the bladder and abdominal wall on the same side; then I carried it across the incision, passed it down through the abdominal wall and bladder on this side, included a segment here, and brought it out as before and just opposite where it had first entered the tissues. Now, when the ends of the suture were drawn upon, the sides of the wound were approximated, but the edges of the incision in the bladder were inverted and their outer surfaces brought into contact while the mucous surfaces were turned inward, thus promoting union.

The effect of this suture in common is to prevent infiltration of urine by keeping the bladder in close contact with the abdominal wall, while it also tends to secure general union by first intention and thereby speedy recovery.

Of course one case is not sufficient to establish a rule, but the practical working of this one tended to confirm me in my belief that the supra-pubic operation, performed in this way, with the necessary after care, may be more speedily recovered from, with less attending danger, than the perineal. I am anxious for an opportunity to put this new feature to a thorough test. I may mention, in this connection, that I prefer to have the bladder empty, and raise it with the sound, so that when the incision is made in it the urine shall not flow out into the wound, though it would do little harm if it does not infiltrate, or get between the bladder and abdominal wall. In another case I should make the first incision from below upwards, because in this way the regional anatomy can be best observed and appreciated, and the cavity more readily entered near the pubes and the peritoneum avoided.

An hour after the conclusion of the operation, the patient being in bed, I introduced an English catheter into the bladder, as I thought, but no urine flowed. Leaving him for a while, I was sent for in an hour or two with the announcement that he wished to pass water. I introduced the flexible catheter again, but no urine came, and when I withdrew the instrument he remarked that he thought he could pass it himself, and allowed it to flow, lying upon his side. While he was doing this there seemed to be a spasmodic action of the parts concerned in its expulsion, and there was a gush of urine from the wound. Being already sick from the effects of the chloroform, he now became faint, and looked quite ghastly for a little while. So I removed the strips of plaster and a superficial suture from the lower end of the wound to allow a free exit. I then instituted drainage by filling a small French catheter with water, passing it through the urethra into the bladder, and turning its end down into a cup placed between his legs. This was late in the afternoon. He had a somewhat restless night, and on the following day some fever, which was easily controlled with veratrum.

Late in the afternoon of the second day, being apprehensive of burrowing of urine between the bladder and pubes—although there were no local symptoms of it—I was induced to remove another suture—the lower deep one. Down to this point adhesion was taking place very nicely, and, had all the sutures been allowed to remain, I think the whole wound would have united as favourably as could have been wished. As it was, there was some gaping at the lower end from the severing of the adhesions that had taken place, which retarded recovery. At the expiration of ten days the catheter was finally removed, and he got on his feet and passed his urine per urethram. At this time all the remaining sutures were removed except one, which was left in until the sixteenth day, when it was taken away, and the patient discharged cured.

During the whole time there was no inflammation, nor swelling, nor indication of burrowing, or abscess about the wound, and it seems to me clear that this method of closing the wound is far preferable, both in point of time and safety, to that of leaving either one or both wounds open.

There are a number of points of interest in regard to this operation which, so far as my information goes, is the first which has been done upon the basis of the article before alluded to.

In the first place, every step seems to have been conducted with the conviction that *safety is more to be desired than speed.* Every one has heard of the renowned Frenchman who boasted how many patients he had cut in a few minutes, but when asked how many recovered, had to confess "none." And, perhaps, it is safe to say that almost every one has seen operations in which the surgeon seemed to aim more at brilliancy and speed than to consider how little these would help his patient. There are operations in which the surgeon must not lose a minute; lithotomy, however, usually affords ample time; and while this method *may* be done with great ease and rapidity, there is no need to hurry, and no need to run any risk on this account.

Another point in the case is that it contributes something to the answer of an objection which has been repeatedly urged against the method. It has been declared not only difficult but dangerous to operate thus in case of persons with thick abdominal walls. Here was a man with a weight of 200 lbs. and fat abdomen, on whom supra-pubic lithotomy was practised with a degree of success quite unusual by any other method.

Dr. Starr intended to operate upon an empty bladder, in which procedure the history of the operation amply sustains one. Contrary to what has been generally belived, *no injection of the bladder is necessary*, as one may easily convince himself by doing the operation upon a cadaver. But an injection was recommended in the previous article, and I cannot but still think that, when practicable with reasonable ease, it would be best to follow any suggestions which cannot add danger and may prove advantageous. An injection in certain cases brings the bladder up out of the pelvic cavity better than a sound can, and may be used when the latter could not. Beside, if the bladder has been previously washed out, and the injection which is to remain contain some antiseptic, it may do good service in insuring the harmlessness of the first fluid which comes in contact with the fresh surfaces.

It is not urged that this is indispensable, but it and some other suggestions are given as an attempt to secure the utmost safety and omit no reasonable precaution. Of course circumstances may differ so as to recommend or require quite different procedures. For example, a case was reported to me some time ago, followed by a rapid recovery, where the whole operation was done without assistants, and with only the instruments to be found in a common pocket case. Thus, in necessity, skill and care may make good a lack of means unattainable; but where anything within reach seems to offer a chance of greater safety, one is not justified in neglecting to use it.

In Dr. Starr's case, though he thought to operate on an empty bladder, he found it containing urine. Urine, when pure, is an innocuous fluid, but the urine contained in a calculous bladder is rarely, perhaps never, pure. Therefore, though from investigation it appears that the danger of urinary infiltration is almost *nil* in this operation, was it suggested that an "injection with warm, and preferably mucilaginous, water to which some antiseptic has been added, should be made," before opening the bladder.

In Dr. Starr's operation, it will be observed, some small vessels "spouted a little blood." The account implies that it was quite unnecessary to ligate them, or do anything but wait for general oozing to cease. Any considerable hemorrhage in supra-pubic lithotomy must be theoretically, and has been practically, almost never known. Only twice in five hundred cases I have now collated has any serious hemorrhage occurred, and such must always be anomalous cases. In this connection I cannot forbear mention of a case of lateral lithotomy which recently came under my personal observation, where the patient nearly lost his life from hemorrhage, being gasping and almost pulseless, before the bleeding could be checked, the blood coming probably from the prostatic plexus. The same patient, after slowly regaining his hold upon life, had a part of his rectum to slough, and when I last saw him, long after the operation, he was emaciated to a skeleton, and had a fistula into his bladder through which one's index could be passed.

One will notice in the account of Dr. Starr's operation how easy was the extraction of the calculus. This is a point of special merit, avoiding those gropings for a stone, or forcible dragging through the perineum, which all authorities hold to be the greatest danger of lateral lithotomy; and which, who is there has not seen?

The suture used by Dr. Starr, including both abdominal and bladder wall in one, instead of the bladder alone as suggested, may prove a good one; but may it not tend to put a strain on the bladder, or irritate it whenever the belly muscles contract or are moved? May it not, in his case, have had something to do with the slight spasm he observed?

In concluding, I wish to add that I have, since publishing the last article, seen two more cases in which lateral lithotomy was followed by impotence, but in one of these the surgeon who operated does not think the operation was the cause.

I also wish to repeat the request made two years ago for any information or statistics in regard to this subject, which may be incorporated in a publication now in preparation.

4037 Chestnut Street, Philadelphia.

ARTICLE XIV.

AN ADAPTATION OF THE PLASTER JACKET TO THE SPLINTS FOR THE HIP.

By JAMES NEVINS HYDE, M.D., Professor of Dermatology and Orthopedic Surgery, Chicago Medical College.

THE results obtained from the employment in spinal deformities of the plaster of Paris jacket, as presented to the profession by Prof. Lewis A. Sayre, of New York, have gained for it in many hands a deserved reputation. The simplicity of the device, the ease with which the jacket can be applied, its speedy relief of distressing symptoms, and the manifest improvement in the figure of the patient which it renders possible, have all contributed to enlarge the sphere of its usefulness. It is quite true that its smooth and perfect adaptation to the trunk requires a certain degree of skill and experience on the part of the surgeon, but these are prerequisites in so much of the labour that devolves upon him, the statement of the fact can scarcely be urged as an objection.

I have had occasion, during the past months of this year, to apply the jacket to a number of patients affected with spinal caries, and have been well satisfied with the result, not only in cases where the disease had occurred in the lumbar and dorsal regions, but also in those where the cervical vertebræ were involved. In the latter class I have suspended the head of the patient from the swivel bar, in the manner described by Dr. Sayre, in the report presented by him to the American Medical Association, in 1876, reproduced in the recently-published *Transactions* of that society. I merely refer to this apparatus at this time, in order to state that it suggested to me the device which I have since perfected and propose to describe in these pages—a device by which the plaster of Paris jacket is adapted to the hip splint, in such a manner that the necessity of a perineal band is entirely obviated, and the consequent abrasion and excoriation of the perineum prevented, while extension, counter-extension, and mobility of the affected limb are made feasible.

For those who have not studied the details of the process by which the plaster of Paris bandage is applied to the trunk, a brief description of the method may be desirable.

A closely-woven merino shirt, sufficiently long to extend below the hips, is drawn over the body next to the skin, and then completely divided anteriorly and vertically with the scissors, so as to remove, on each side, the linen facings of the shirt with its button-holes and buttons. The divided edges are then smoothly folded, the one over the other, so that the shirt is brought snugly over the trunk, and the edges sewn together with needle and thread from the top to the bottom. A pad is next applied over the abdomen and beneath the shirt (especially near the region of the stomach), sufficiently large to supply, when it is removed, a space which will permit of abdominal distension after meals. In order to insure its removal a strip of bandage is fastened to this pad, and left depending to the knee. Smaller pads of cotton batting are slipped in also, over the anterior superior spinous processes of the ilium. An opening is then made in the lower edge of the shirt, in front and behind, through which a strip of bandage is passed and tied between the thighs, after the shirt is well pulled down and a handkerchief or pad pressed against the perineum.

The patient is then supported by straps passing through the axillæ, and also under the occiput and symphysis mentis, so arranged that they can be shortened and lengthened at will. These straps are fastened to the extremities of a slightly-curved iron bar, suspended from a hook above by the intervention of a compound pulley. The patient is raised from the ground and held suspended by traction upon the cord which passes over the pulley; and when affected with Pott's disease he should be so suspended that the entire weight of the body may serve as an extending force. When the jacket is applied merely for the purpose of supporting a cervical rod or a hip splint, it is requisite that the weight of the patient should be taken from the feet, only so far as to insure a proper degree of spinal extension.

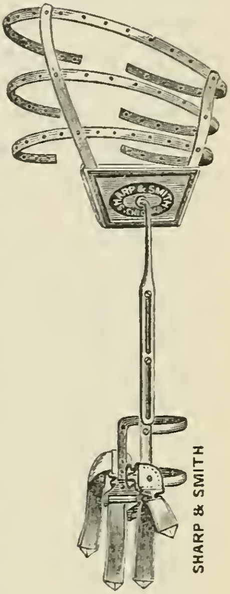
Two precautions should be taken: First, the patient should not be permitted to rest, for example, with one toe upon the ground, in such a posture that the axes of the trunk and limbs are not coincident or parallel; and second, the patient, if an adult, should not be allowed to aid in supporting himself by grasping the extremities of the suspending bar with his hands. I have seen both of these postures result in a maladaptation of the jacket to the body, when the latter was no longer suspended.

The trunk is now gradually incased by the application of bandages, three or four inches wide (made from what is sold in the shops under the name of "crinoline"), which have been drawn through freshly-ground plaster of Paris, and into which the dry powder has been thoroughly rubbed. The rollers are placed in a vessel containing sufficient warm water to cover them, and are ready for use as soon as the bubbles cease to escape. They are applied over the shirt without making any traction, commencing at the waist, passing down to the pelvis, and upward over the thorax. Prior to the completion of the last few turns, the shirt is divided transversely with the scissors, in a line about one inch and a half beyond the highest and lowest turn of the bandage, and the flaps thus left are folded outward (and downward or upward), when they are retained in place by the concluding turns of the bandage. By this means a cushioned edge is provided for the jacket, both below and above.

As soon as the plaster has sufficiently "set," the patient is laid in a recumbent position upon a mattress; and when the solidification is still further advanced, he is made to stand while the hip splint is applied to the jacket.

From the universal joint downward, this splint does not differ in principle from that modified by Dr. Sayre, as described in his recently published Lectures on Orthopedic Surgery, in Prof. Gross's System of Surgery, and other treatises. In the figure appended, which represents the splint as manufactured by the well-known instrument-makers of Chicago, Messrs. Sharp and Smith, extension is shown to be secured by a device which is intended merely to simplify the instrument, and thus render it less expensive, though the ratchet and cog with key may be used if desired. As seen in the figure, the extension is fixed by the aid of two screws, which hold in position the external upper and internal lower steel rods of the splint proper, the latter being provided with longitudinal slots so arranged that they may be slid into any desired position for extension, and then secured firmly by the screws. These screws are fixed only after the arm of the surgeon, which is capable of exerting far more than the requisite degree of force, has produced the necessary amount of extension.

Fig. 1.



The pad, which should rest above the great trochanter of the femur, can be made much smaller than that represented in the cut. From it rise two flat rods of malleable iron, the posterior somewhat longer than the anterior, which can be bent by the hand so as to adapt them to the curves of the plaster jacket. They are united by transverse slips of perforated tin, which are designed to give greater immobility to the artificial acetabulum, and to prevent any lateral twisting. The perforations are made alternately from one side to the other and the reverse, so that roughened edges may be presented to and buried in the plaster of Paris on either face of the strip.

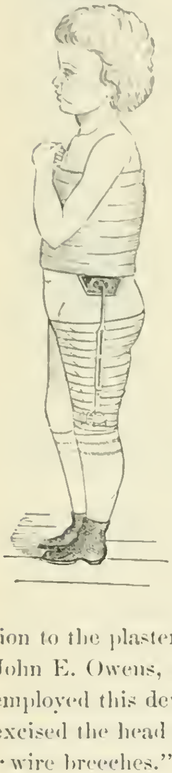
Before the application of the splint, the dressing of the limb should be completed in the usual manner; and this should, in general, be accomplished before the application of the jacket, as the apparatus for night extension is usually first requisite, in order to bring the affected limb into a favourable position. For night extension with the pulley and weight, tabs of inelastic webbing are sewn to strips of Maw's moleskin plaster, sufficiently long to extend above the knee, and when properly secured by bandages, one strip on either side of the leg, with the tabs over the malleoli, the upper extremities are turned downward, and secured by the roller.

Tabs are also sewn to fan-shaped strips of the same plaster, many-tailed at the bases of the triangles, and the tabbed ends are secured, one on each side of the thigh, just where the jaws of the splint are to be fastened.

These strips of plaster are also nicely moulded to the limb, and held in place by a roller bandage, the many-tailed upper extremities being alternately reflected downwards, and secured by the final turns of the roller.

To apply the splint, the jaws are buckled to the tabs upon the thigh; the strap which encircles the lower third of the thigh is also secured, and the splint shortened by the aid of the screws to its extreme limit. The iron and tin supports of the pad are then accurately moulded to the solidified plaster jacket, and a new series of turns of the plaster-of-Paris bandages are made to surround and fix the apparatus. As soon as solidification of this last dressing is established, extension is made and secured, and the patient released.

Fig. 2.



I append a cut, executed from a photograph by Mosher, of a little patient who has worn this splint with comfort and manifest advantage since the date of its application, April 20, 1877. She gave the history of a case of morbus coxarius of traumatic origin, and was found to be in the second stage of that disease when first examined. The affected limb had been subjected to continuous extension by the weight and pulley, for some weeks prior to the adjustment of the splint.

In order to remove the splint, for the purpose of using the weight and pulley at night, or for any other reason, the screws are removed, the upper arm of the splint, by the aid of the universal joint, is turned upward, and secured by a ribbon to the plaster jacket, while the lower arm, with the transverse pieces, is unbuckled, and the thigh thus left free.

The long hip-splint may be used with an adaptation to the plaster jacket of precisely the same character. My friend, Dr. John E. Owens, Surgeon of St. Luke's Hospital of Chicago, has recently employed this device successfully in the case of a patient where he had excised the head of the femur, and for some time afterward had used the "wire breeches." In this instance, the fistulous openings in the soft parts made it particularly necessary to omit the use of a perineal band.

It will be clear from the preceding description that the hip-splint, as thus modified, provides for extension and counter-extension, with free mobility, and without perineal pressure. The idea of supplying a method by which extension and counter-extension could be secured without perineal pressure, but *with fixation of the joint*, has already produced practical results. The best apparatus of this sort is that devised by Verneuil.[1] It is applied as follows:—

---

[1] É'éments de Chirurgie Clinique, etc., Guyon, Paris, 1873, p. 643.

The patient is dressed in a pair of cotton drawers closely woven, which rest directly upon the skin of the trunk and limbs, and reach as high as the waist. The drawers are then surrounded by a very thick layer of cotton-batting, the edges of which, in order to secure them, are neatly basted together. Three strips of iron are next superimposed, in order to prevent the completed dressing from cracking over the surface of the articulation in consequence of the movements of the trunk, and also in order to secure the requisite extension. Of these three strips, one is T-shaped, and its vertical part is placed behind the hip and thigh, while its two horizontal arms are brought round the body so as to encircle the abdominal muscles, and thus form a complete and solid belt. The extremities of the transverse portion are united by cords; they are made of such thinness that, if too long, they can be clipped by the scissors to the proper dimension. The upper end of the second iron strip is secured to the belt in the same manner, and the strip itself is applied to the external face of the pelvis and thigh. The third strip is similarly fastened, and rests upon the anterior face of the thigh; and the ends of all are well padded in order to obviate any uncomfortable or injurious degree of pressure. Then the wadding and iron strips are neatly covered in by the ordinary roller bandage, the precaution being taken to fold downward (or upward) and outward, the edge of the drawers projecting over the cotton wadding both at the waist and at the knee. This makes a thick and resisting cushion, which protects the patient from undue pressure when the apparatus has become solidified. In passing from the pelvis to the thigh, the bandage should be crossed as in the spica of the groin. Outside of the whole, the silicate of potassa or dextrine dressing is applied; and as soon as this has become perfectly solidified the patient is dismissed.

I do not doubt that the use of the silicate of potassa or soda would be preferable to the employment of plaster of Paris in applying the jacket, not only in the case of patients affected with hip disease, but also in those who have caries of the spinal vertebræ. The chief advantages which would thus be gained, in the matter of diminishing the weight of the dressing, and decreasing the time which must elapse before it becomes perfectly dry, are considerations of importance.

Article XV.

A Bulbous-Headed Dilating Urethrotome.

By R. A. Kinloch, M.D., Professor of Surgery in the Medical College of the State of South Carolina, Charleston, S. C.

In the treatment of a certain class of urethral strictures, the operation of internal urethrotomy has of late years gained in the favour of the profession, and I believe that it merits higher claims, both for promptitude of action and permanence of cure, than any procedure yet instituted for effecting like results.

The two methods of practising internal urethrotomy, *d'avant en arrière* and *d'arrière en avant*, have each their applicability, and their merits need not be here discussed. We may remark, however, that the latter procedure is assuredly the safer, and the one to be preferred when the surgeon has the privilege of selection. These distinct methods have developed the special principles of action attached to the urethrotomes in use. We cannot afford to dispense with instruments representing the two separate classes; each has its special adaptation to individual cases of stricture. The varieties and complications of urethral contractions met with in practice require every surgeon then to be at least doubly armed if he would be ready for his work. The purport of this paper calls for comment upon only one of these classes of urethrotomes. And while I do not desire to institute invidious comparisons, or to devote time to criticism of the merits of instruments of the class in question, I would nevertheless remark that of all the instruments in use for the division of strictures from behind forwards, that of Civiale may be regarded the safest and most popular. And yet I venture to believe that most surgeons will agree with me in the opinion that this instrument is far from perfect; indeed, that it has many defects.

Better to explain my views, I submit the following as requisites for a good instrument of the class under consideration:—

1. It should be able accurately to define the site and degree of the contraction. 2. It should be sufficiently delicate to penetrate strictures of small calibre, and yet equally capable of defining and cutting strictures of large calibre. 3. Its mechanism should be simple, strong, and not easily deranged. 4. It should be able to cut effectively, and yet have its action restricted to a degree necessary for safety. 5. It should be as inexpensive as possible. This last quality is desirable, but not as essential as the four first named.

How far does the urethrotome of Civiale conform to the requirements named? The flattened disk at the end which receives and covers the knife is useful only to a limited extent in defining the seat and calibre of the stricture. As ordinarily made, the disk cannot enter a narrow stricture on the one hand, or accurately define one of large calibre on the other. The disk is fixed to the staff, and, as the instrument is found in the shops, is of a certain size. To fulfil the first and second requisites, then, one instrument would not suffice; we would be compelled to have at hand several instruments, each one with a terminal disk of special diameter, sheathing blades of corresponding dimensions for doing the cutting by the simple movement *d'arrière en avant*.

Next the mechanism of this instrument is complicated, weak, and, as tried by my experience, very easily disordered. I have had the short lever that projects the blade break several times during operations. In consequence of deficient strength in this, the knife cannot always be sustained during the division of dense and resisting tissue. If the strength proves sufficient, and the blade be well advanced, we have to all intents and purposes a dilating urethrotome, with a blade unguarded, and therefore likely to cut too deeply for safety. Lastly, the urethrotome of Civiale is an expensive one in virtue of its mechanism and its liability to derangement.

The advantages of the "*bougie à boule*" (the ball, solid bougie of Bell, or the elastic one of Leroy) in detecting and accurately treating urethral contractions are so well known that they need not be specially alluded to here. We know that operators in general employ the instrument as an explorer of the canal prior to urethrotomy. By measurement with this, the site and calibre of the stricture are duly determined before the urethrotome is made to do its work.

It is several years since I began my experiments in fashioning the urethrotome so as to make it also a "*bougie à boule*," and thus serve a double purpose. First I thought of adapting the bulb to the Civiale mechanism, but this idea was soon rejected for the double reason of the weakness of the mechanism and because of the recognized necessity, under such combination, of having a separate staff and blade for every size of bulb that would be used. I desired to have as many bulbs as I thought necessary for fixing the calibre of strictures, each one to be attached at will to the same staff. These bulbs (or olive points, or conical heads) I thought would correspond with the sizes of the bougies in use as determined by the French or English scales. I took it for granted, however, that the diameter of the smallest bulb to be used with a urethrotome for cutting from behind forward would, to accommodate the staff of sufficient strength, be hardly less than 8 or 10 French. To effect the object in view I arranged for the knife to work *below* the bulb, and not to have the bulb as its sheath.

During a visit to Philadelphia last fall I was pleased to learn that my friend Dr. S. W. Gross had also been experimenting with a bulbous-headed urethrotome, and had produced a very simple and excellent instrument well adapted to some strictures, but not, I think, having a very wide range of usefulness. This urethrotome has since been figured and described in the late edition of Prof. S. D. Gross's admirable work on the Urinary Organs. The chief objection to Dr. Gross's instrument I have given elsewhere (see Review of Prof. Gross's book, *Charleston Med. Journal and Review*, Jan. 1877), but may briefly repeat them here: The terminal bulb and the staff are *inseparable*, and consequently many instruments become necessary in dealing with the varied degress and kinds of contraction, or, in other words, with strictures of different calibres and degrees of resistance. A single bulb of definite size is of course never sufficient for general purposes of exploration. The knife-blade in Dr. Gross's instrument is hidden in *the centre of the bulb*, and thus sheathed by it when the operator is exploring the canal. After the contraction is found the knife is exposed or brought into position for cutting by simple traction made on the delicate steel rod to which it is attached, and which runs in a groove of the staff. The mechanism is simple and strong. The plan by which it is expected to divide the stricture is by a movement of the staff *d'arrière en avant*. But it will be observed that the instrument is in no respect a dilating urethrotome, and it thus appears to me that the mere passage of the knife *d'arrière en avant* through the contracted portion of the canal that has just admitted the bulbous end *d'avant en arrière*, which has a diameter greater than the breadth of the knife-blade, will not insure free or certain division of the stricture. If greater range is given to the blade, as proposed for some cases by the author, by adopting the Civiale mechanism, then the instrument is simply the Civiale urethrotome with a bulb for sheathing the knife and for exploring the canal instead of the flattened disk, and is liable to the objections advanced against that instrument.

The instrument that I now respectfully offer to the profession[1] has, in my hands, been found better to serve the requirements above suggested for a urethrotome of the class in question. It is a ball probe, or urethral explorer, and also an efficient urethrotome for cutting from behind forwards. The range of its usefulness is wide. Without the terminal bulb the instrument can penetrate strictures of small calibre (No. 9 F.), while with the bulbous attachment of proper size, any narrowing in a canal of the largest dimensions (as high as 40 F.) can be detected. The blade can be projected, and the extent of the projection is recorded by the indicator, to a degree commensurate with the natural capacity of any urethra, and the narrowness of the contraction to be relieved. The most thorough division can be accomplished in strictures of the largest calibre, for the canal is dilated at the point of stricture by the projection of the blade, and, however limited the contraction, this can yet be divided by the simple retrograde movement of the instrument. The mechanism of the whole is so strong that there is no danger of its being deranged even when the knife is sprung for the freest kind of incision. Neither is there danger of the incision extending too deeply, for the blade is made with a shoulder that restricts its penetration and insures safety.

The staff can be made straight, or, if desired, have a moderate curve. The former pattern I prefer for general use. With this the incision can be directed upon either the upper or lower portion of the canal, or, as some operators prefer, the stricture may be divided at several points of its the hard work of a nurse in the women's medical ward. She apparently eliminates a large amount of urea. passing in 24 hours 1500 c. c. of urine, containing 42 grms. of urea. In 24 hours succeeding a sweat she passed 1400 c. c. containing 56 grammes of urea. It is highly probable that this constant large elimination of urea is the cause of her apparently excellent health.

---

[1] The original instrument was exhibited more than two years ago to the Medical Society of South Carolina.

M. J., No. 2, a woman with chronic catarrhal nephritis, passed 800 c. c. urine in 24 hours, containing only 3.2 grms. urea; in 24 hours succeeding a jaborandi sweat she passed 600 c. c. containing but 3 grms. urea.

J. R., with chronic Bright's disease, passed 2100 c. c. urine in 24 hours, containing 27.3 grms. urea; in the 24 hours immediately succeeding a jaborandi sweat he passed 2700 c. c. urine containing 29.7 grms. urea.

It will be seen from a comparison of the above results, which can be readily done in the following arrangement:—

	In health, before Jaborandi.		*After Jaborandi.*	
A. C., male,	960 c.c. urine,	19 gms. urea.	1026 c.c. urine,	20.7 gms. urea.
L. D., female,	1000 " "	19 " "	900 " "	27.0 " "
C. M., male,	1620 " "	24.3 " "	1800 " "	27.0 " "

	In Bright's Disease, before Jaborandi.		*After Jaborandi.*	
D. B., male,	1250 c.c. urine,	5 gms. urea.	1650 c.c. urine,	6.5 gms. urea.
M. J., female,	1500 " "	42 " "	1400 " "	56.0 " "
M. J.2d, female,	800 " "	3.2 " "	600 " "	3.0 " "

That in health the quantity of urine is slightly increased in the 24 hours in one case, and somewhat diminished in two, while the urea itself is increased decidedly in each instance. In Bright's disease the urine is increased in one case and diminished in two, while the urea is increased in two instances and very slightly diminished in one.

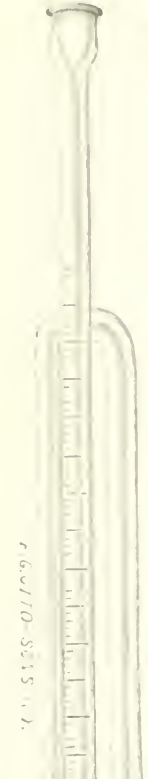
From these facts we must at least conclude that the tendency of jaborandi in health and disease is to increase the elimination of urea. This would rationally be expected from the increased freedom of movement of the blood through the entire circulation, and especially through the kidneys, which must follow profuse sweating from any cause. But this increase is scarcely sufficient to justify us in attributing the entire benefit which follows jaborandi sweats in Bright's disease. Such advantage is, doubtless, also largely due to the removal of fluid and elimination of urea by the skin.

PATHOLOGICAL LABORATORY OF THE UNIVERSITY OF PENNA., June 1st, 1877.

ARTICLE XVIII.

THE HÆMARUMASCOPE. By OCTAVIUS A. WHITE, M.D., of New York.

A SERIES of experiments, recently undertaken by me with the ordinary modern appliances, in order to determine, if possible, certain physiological points appertaining to the circulation of the blood, could not fail to impress



a desire to have at command some more ready and sensitive instrument by which the various minute and delicate qualities and quantities about this latent current could be detected and analyzed.

Peculiarities had been always supposed to exist in this element of nice grade and character, important to be noticed and estimated, yet destined apparently forever to elude tactual skill and even defy discovery by means of any instrument of precision hitherto devised.

The instrument here prefigured was found after many patient trials to aid in refined investigations. Exquisitely sensitive to any impression, however delicate, received from either artery or vein, it may be intended to explore; matters of vast interest and importance relating to the physiology of the circulation, appear revealed by it for leisure study.

This instrument, which I denominate a hæmarumascope,[1] consists of a glass tube of fine calibre, free at both extremities, and bent symmetrically upon itself. This configuration has been selected with a view to abridge dimensions and at the same time to secure, when adjusted, a sufficient column of entrapped air to utilize as a highly sensitive and elastic spring. One extremity is expanded in bell-shape, to facilitate accurate coaptation over the trunk of a superficial vessel, to exclude more effectually all external air during process of observation, and to avoid loss of force or volume though impact against upright sides or angles.

Care having been taken to dispense with the interposition of artificial membrane over the vessel, by which the true qualities of a pulse-beat might be vitiated and exaggerated, the instrument here offered I believe to be especially qualified to receive and faithfully impart a full and veracious representation, by means of its contained register, of any pulse characters about to be critically examined.

It has been found important, also, that the diameter of the tube should bear a certain relative proportion to the diameter at the base, in order to render it highly impressionable to every pulse feature which may transpire beneath, when applied for scientific exploration.

The shaft of the tube will be found carefully graduated into centimetres, to facilitate quick estimation of the features to be noted.

In order to prepare the hæmarumascope for an observation, a fraction of a drop of filtered solution of rose aniline in alcohol, with some essential spirit, must be introduced. The essential spirit is thus employed in combination with a view to its quality to diminish friction within the bore of the tube.

---

[1] Αἷμα, blood; ῥύμα, stream; σκοπεῖν, to show.

The introduction of this sensitive solution into the calibre of the instrument must be effected with such skill as to insure unbroken solution of continuity in the column of fluid. When so accomplished, the two extremities of the tube being left free, the fluid naturally gravitates to the most depending portion, which is just immediately at the lower bend of the instrument when held in readiness to be applied.

Should the column of fluid, however, at any time become disunited within the shaft of the instrument by accidental admission of air, reconsolidation can be again readily effected by holding the instrument upright and by means of firm and steady pressure of its larger extremity upon the palmer surface of the hand, force the entire volume of the fluid upward to the smaller extremity. By this simple manœuvre all air bubbles can be expelled, and the return secured of a united column of fluid back to its proper place, ready again for an observation.

No demonstration has ever yet been afforded of characteristic blood-movement within the veins. The manifest difficulties attending the examination of a current so undemonstrative have doubtless deterred many observers from essaying in that direction, and the question still recurs among physiologists respecting the cause and nature of the heartward stream of the circulation.

That there are peculiarities of great therapeutical concern to observe about the venous system none who have carefully considered this subject can deny. The venous system is undoubtedly liable to its own peculiar class of derangements, and from it we have reason to look for most congestive actions.

The manifestation of a palpable venous pulse has always been regarded as a sign of disease; and Niemeyer and others have affirmed that when detected about the veins of the neck, it signifies that regurgitation is taking place actively through the tricuspid valve. Pulsation in veins is certainly rendered more manifest when any obstacle prevents too free flow of the blood through the pulmonary artery, or when the auriculo-ventricular valves fail to close with accuracy the passage in which they are placed.

The learned physiologist, Hales, taught that all the blood which is emptied by the right auricle into the ventricle below is not accepted by it, but that an appreciable modicum was being continually thrown back into the superior and inferior venæ cavæ. The undulation thus produced, he states, had often been detected as far back as the external jugulars and even iliacs. That there must be movement of the blood within the veins, correlative with its centrifugal delivery, admits of no question, and therefore the existence of a venous pulse is rationally implied. This inference naturally sustained me throughout many patient efforts to discover and reveal this motion, though infinitesimal in quantity; and I found the hæmarumascope quite adequate to explore and demonstrate with exactness the rate, force, volume, and other important features pertaining to vein trunks and their manner of transmitting blood.

When this instrument is made to rest firmly and steadily upon the trunk of a superficial vein of sufficient dimensions, the peculiar movement of the stream of blood beneath the bowl of the instrument sets the sensitive fluid column within the tube into sympathetic motion, clearly demonstrating that the blood within the vein receives the shock and experiences augmentation of contents nearly isochronous with the arterial throb. This appears to justify a conclusion that the *vis à tergo*, generated by the heart's action, is not quite exhausted before the threshold of the venous system, and that a sufficient amount of momentum is left over, and acts as a *vis à fronte* to urge the blood onward in its centripetal direction.

Should this instrument be applied with care on a vein even upon the back of the hand, in any favourable subject, and a gentle series of taps, with a pointed instrument, be imparted to the trunk of the vessel just anterior to the bowl of the hæmarumascope and nearest the observer, a very remarkable disturbance, undulatory in character, will be found imparted to the minute register within the tube. This experiment shows that the blood by this act is being urged forward through the valves more rapidly than it would normally travel by coercion at the heart. Let the same manœuvre be now practised upon the trunk of the same vessel, between the instrument and the heart, and quite a contrary effect will be noted. This latter experiment proves, without doubt, that the valvular arrangement within the vessel, together with the *vis à tergo*, is resisting backward flow.

Such experiments may serve admirably to test the degree of tonicity about the fibro-cellular coats of veins and also the integrity of their respective sets of valves.

Should pressure sufficient be now momentarily applied to interrupt the current of blood through the vein, pulsation is observed to be halted; but, so soon as the restraining pressure is removed, the series of agitations manifested by the column of fluid within the tube exhibits the interesting struggle going on within the vein to recover proper equipoise in its circulation.

The introduction therefore of so extremely sensitive a manometer cannot fail to extend the field of physiological research, assist in detecting any deviation from a healthy standard in which the circulation is primarily at fault, facilitate distinction between sthenic and asthenic forms of disease, afford early indications for withholding or administering stimulants, aid in the study of the various idiosyncrasies which present so many obscure problems for investigation, and, finally, lead the way to clearer therapeutical conclusions.

REVIEWS.

Art. XIX.—*Traité des Tumeurs Bénignes du Sein.* Par Leon Labbé, Chirurgien de l'Hôpital de la Pitié, Professeur agregé, etc. etc., et Paul Coyne, ancien interne et lauréat des Hôpitaux, adjoint au laboratoire d'histologie de la Charité, etc.

A Treatise on Innocent Tumours of the Breast. With two colored plates and thirty-two wood-cuts. 8vo. pp. 560. Paris, 1876.

Sir Astley Cooper's work on the Anatomy and Diseases of the Breast was published in 1829; the original treatise on the diseases of the breast and mammary region of Velpeau came out in 1853, the English translation by Mitchell Henry appearing three years afterwards. The publication now before us is one to be placed alongside of these famous works on the shelves of a surgical library.

Before Sir Astley Cooper's time, all, or nearly all, swellings of the breast were confounded under the general name of cancer. A learned surgeon of his time, Le Dran, in a memoir to be seen in the Memoirs of the Royal Academy of Surgery, volume the third, page 1, published in Paris, 1778, divides what he has to tell about cancers into four parts:—

1. Cancers attacking the skin in any part of the body.
2. Cancers forming in the breasts of women, often from external causes.
3. Cancers formed by the reflux of the menstrual discharge, at the time of its cessation; and
4. Cancers produced by the vice of the lymph.

In Cooper's division of diseases of the breast, those only are cancerous that are produced by what Le Dran calls "*the vice of the lymph*," or as he himself terms it "a morbid state of the constitution." What the morbid state, or the vice of the lymph may be, in which or by which cancer is produced, he knew, as we also at the present moment, as much and no more than Le Dran, who "avows in good faith that his knowledge of the natural state of our liquids is too limited to enable him to describe what takes place in them when their nature is changed, whether they still circulate, or whether they are arrested and stagnant in their vessels." Cooper's great advance was made by a more careful study of the anatomy of the breast, and as he himself expresses it, by carefully investigating the internal nature of disease by dissection, and by comparing its internal nature with its external characters in the living body. It was by these means, and not by theorizing upon changes in the liquors of the body, or upon the effects of the reflux of the menses, that he determined the existence of other classes of disease of the breast than the carcinomatous—those, namely, "that result from common inflammation, whether acute or chronic," and "those which arise from peculiar or specific action, but which are not malignant, and do not contaminate other structures." Sir Astley Cooper was, we believe, beyond a doubt, the first to recognize and to demonstrate that tumours were found in the breast that differed from cancers, above all by their being non-malignant.

Since Cooper's time we have certainly made progress, but it has been made by pursuing his methods; the anatomy of the breast has been studied more minutely, the internal nature of disease has been more deeply and fully investigated by dissection, and this internal nature has been more carefully and more thoroughly compared with its external characteristics in the living body. In this way, in the work before us, an accomplished clinical observer and a most competent histologist have laboured together, and the result has been to further greatly our knowledge of tumours of the breast. It is in this way only that progress can be made in the pathology of tumours, by clinical study and anatomo-pathological study marching side by side.

In the work of Velpeau we have all that clinical experience can tell us, aided by the anatomo-pathological knowledge of his day. Clinical experience had positively determined that, among the tumours of the breast, there were some that grew slowly, had generally no ganglionary complications, and did not become, so to speak, constitutional. It was known, too, that pathologists had recognized certain interesting peculiarities, such as a lobulated form, and the existence of cystic cavities. It was certain that Cooper had confounded under the common name of Hydatid Tumours of the Breast, some that were more properly called fibroma or cystic sarcoma with endo-canalicular vegetation. In the majority of cases the glandular connections of the tumour had been exactly determined by following a pedicle uniting it to the tissue of the gland. To know what we know now, that all these tumours, called successively chronic mammary tumours, hydatids of the breast, fibrinous tumours, fibromas, etc., were substantially the same, with some differences in the nature of the associated tissues, and the arrangement of the anatomical elements, to show the causes of these various forms and appearances, and to explain the pathology of each one of these varieties of tumour, it was necessary to use other methods of investigation, and to make a more minute study of anatomy, normal and pathological.

It is particularly interesting to one who was studying his profession in Paris about the time of the appearance of Velpeau's work, twenty-five years ago, in the early part of the second half of this century, to recall his visits to the wards of Velpeau, Nélaton, Roux, and other great clinical teachers, and his studies with Robin, Verneuil, Broca, and other enthusiastic microscopists. It was, moreover, in 1854 that the great discussion took place in the Academy of Medicine as to the curability of cancer, in which all the great medical men of Paris participated. At that time the teachings of Lebert, owing mainly perhaps to their apparent simplicity, were enthusiastically adopted by young men. The nature of a tissue, it was taught, was to be determined by the determination of the elements composing it, because when a certain anatomical element exists in a tissue, this tissue possesses a certain property. Every tissue that contained among its elements certain cells and nuclei, was malignant, and every tissue that did not contain them was not malignant, no matter what might be its exterior characters. These cells and nuclei differed from any met with in the normal tissues, and were completely heteromorphous. It was believed by the anatomo-pathologists that the cancerous element was *specific*. By the men of great clinical experience this was not believed, and at the present day we must all admit that they were right. They have incontestably shown, as Velpeau says in his preface, that "what was called the cancer-cell is not the specific element of cancer, that well-marked cancers may not contain this cell at all, and that it has been found in non-cancerous tumours."

It would certainly be a very artificial classification of tumours, one in which their pathology was based upon the character of isolated anatomical elements, so fragile, so easily changed, so dependent upon their surroundings. Tumours must be studied as all objects in the natural sciences are studied, and be distinguished by a number of characters serving as a foundation to a classification in which there is nothing artificial. As Paget puts it:—

> "Some pathologists would exclude from the name of cancer all these tumours, and all which are not composed of the 'specific' cancer structures; but I feel sure that we shall do right if (when a choice must be made) we choose modes of life, rather than structures, for determining the affinities of morbid products, and for arranging them under generic names. As of all tumours, so, especially of cancers, the true nature is to be apprehended only by studying them as living things." (Note A, page 794 of *Lectures on Surgical Pathology*, London, 1863.)
>
> Again: "It may be accepted as a well-established fact, both in physiology and pathology, that similarity of structure between two or more different parts is not of itself sufficient to determine functional correspondence. The examination, therefore, of any texture, either morbid or healthy, cannot be regarded as complete if it is limited to a mere determination of its form, appearance, and structure. Its growth, development, tendencies, influences upon the individual in whom it occurs, in short, its life, must be attended to. Its teleological as well as its morphological aspects are to be considered." (Paget, l. c., p. 575.)

In other words, as we said before, progress in the pathology of tumours can be made only by clinical study and anatomo-pathological study marching side by side; by studying a tumour while alive as well as when dead.

The authors of the work before us limit themselves to the examination of *benignant tumours of the breast;* that part of the subject most imperfectly treated of in the clinical work of Velpeau, and the one most urgently demanding to be brought up to the level of the science of the day. They prefer the vague expression of *benignant tumour*, to that of *adenoma* (or even of adenoid), which is the last scientific term adopted, because this has the serious inconvenience of supposing the intimate nature of the tumours to be absolutely demonstrated, and to reduce under one head things that are in reality multiple. Nothing in nature is sharply defined, and there are degrees between what can be called with certainty a benignant tumour, and one that nearly approaches the malignant. They find, however, for all benignant tumours, one common character; *they are limited by a fibrous capsule*, whose formation is explained by the *anatomy of the breast* and *by the point of departure of the morbid processes.* These tumours in fact derive *their origin from a modification of the parts that compose the primitive lobule of the mammary gland.*

It is not only from the great number of facts they have assembled together that the authors of this work have given therein more complete results than any hitherto furnished, but also because from the tumours they have examined they were able to study the different lesions united under the name of benignant tumours, *from their origin to their last development. This evolution of the morbid processes* is of capital importance, and must always be well considered in every anatomo-pathological research. By observing tumours only at one point of their evolution, able observers have given a false interpretation to facts they noticed, and made statements necessarily incomplete or even erroneous.

The work is divided into four parts: entitled Historical Considerations;

The Mammary Gland and its Tumours; The Pathological Anatomy; and The Pathology of Benignant Tumours. A Bibliography of the whole subject, occupying eleven pages, is added.

It is impossible to read carefully these different parts—in which the views and observations of the authors are set forth, together with those of the eminent men in our profession of Germany, France, and Great Britain, who have been interested in the subject—without being not only fully satisfied with the correctness of their conclusions, but also struck with admiration at the manner in which, throughout all the scientific researches in anatomy and pathology, from the portion treating of the embryology of the mammary gland to that in which is discussed the proper treatment of its morbid growths, they have never lost sight of what should be the only object of all such works, namely, that of arriving at practical conclusions, that can be made use of for the cure of our patients.

These conclusions are as follows:—

1. A group of tumours exists in the breast that may be called *benignant tumours.* The character of *benignity* they all offer, in different degrees, is due to this special anatomical fact, that they are *clearly limited by a fibrous capsule that isolates them from the rest of the gland and the surrounding tissues.*

2. All these tumours *have their origin in the glandular element* (peri-acinous tissue or epithelial lining). They present themselves under four principal anatomical forms. Three of these forms depend upon the *conjunctive tissue* (fibroma, sarcoma, myoma). Only one has its point of departure in the *epithelial lining;* this is the *intra-canicular epithelioma.*

3. All these tumours are *benignant if compared with cancer;* but their degree of benignity varies in certain given conditions. Those dependent on the conjunctival tissue are *benignant in the absolute signification of the word.* They return only, in the immense majority of cases, in consequence of an incomplete operation. Those that have taken birth at the expense of the *epithelial element* remain *benignant so long as they have not, so to speak, used up their enveloping capsule.*

4. A great number of symptoms peculiar to these tumours are *common to their different varieties.* Nevertheless, from henceforth, it is possible to assign to each one of them some symptomatic characters allowing them to be clinically distinguished from one another. Although the results obtained in this point of view are still not many in number, we can foresee the moment when it will be possible to make them complete.

5. The pathological anatomy of benignant tumours of the breast demonstrates that almost always *simple enucleation* of the tumour constitutes an *incomplete operation.* The lesions that have reached in the tumour itself their highest point of development are already in the way of evolution in the neighbouring glandular tissue. To practise then *a complete operation* it is necessary to go beyond the limits of the tumour and practise *partial amputation.*

6. This rule, that may be adopted when very limited tumours (fibromes) are concerned, can no longer be considered sufficient when the tumour is very voluminous and of rapid development (*sarcomes, myxomes*); in this case, *total amputation of the breast* must be practised.

We shall give a few pages, translated, in which the symptoms presented in the course of the development of a benignant tumour are described.

"Patients who have or who are about to have a so-called *adenoid tumour of the breast*, experience, in the majority of cases, in the mammary gland some *vague, subjective* sensations scarcely perceptible, but which sometimes, on the contrary, become so violent as to assume a *neuralgic character*.

"Frequently also, at their menstrual period, the breast seems to them to be *harder, more swollen;* they experience a sensation of fulness and of tension of this organ: at other times, on the contrary, but this fact is much rarer than the preceding, the menstrual flow brings about at each period, if it is regular, a feeling of remarkable ease. Warned, disturbed by these badly determined phenomena, the patients have their attention seriously aroused only by chance, or perhaps on the occasion of a blow, sometimes insignificant. They then perceive that they are carrying in the breast a tumour, whose size is most generally quite small at the time when its presence is first established. Quite often the form of this tumour is regularly rounded or ovoid, and if for some time it is difficult to limit it clearly from the mammary tissue, in the midst of which it is lost, it before long disengages itself, it becomes *isolated from the tissue of the gland;* then its form, its consistence, its relations with the different parts of the breast, its mobility under the skin and over the deeply seated parts, become evident.

"At this time it is found that if its periphery does present *slight elevations*, it has remained *smooth to the touch*. Its *consistence is hard, almost elastic*, and very manifestly contrasts itself with that of the normal mammary tissue that surrounds it.

"*Slipping over the deeply seated parts*, which allows it to be easily isolated, it *rolls also with the same facility under the skin*, with which it contracts adhesions only very tardily, if indeed it can ever be said that true adhesions form in this case. This fact is only produced when the size of the tumour has become considerable.

"It is *tied to the proper tissue of the gland by a pedicle* more or less voluminous, more or less manifest, which it is possible for a long time to find. At other times, but quite rarely, this tie, on the nature and formation of which we were sufficiently lengthy in another part of our work, has ceased to be perceptible; the tumour is then perfectly isolated, and has become completely isolated by exploration with the fingers.

"This tumour is subject to certain functional influences. Thus, while the menstrual discharge is flowing it becomes more tender and painful to pressure, while generally it was not so except at this time. In some cases, when the neoplasm becomes evident, there is produced from the nipple *a flow of a mucous or muco-sanguineous* liquid, whose abundance and physical qualities vary in certain given conditions.

"A tumour, presenting the ensemble of phenomena we have just enumerated, can *remain stationary for a long time* without being changed in any respect in its objective and functional characters. But, after a variable space of time, generally very long (often many years) on the occasion of injuries or of congestive phenomena developed in the breasts under the influence of the menopause, or indeed again without our being able to find in any way the newly added cause, it is seen *suddenly to enlarge, and to isolate itself more from the rest of the gland*, to become projecting, to push out the skin, and to deform the region it occupies.

"It thus often acquires in a few months truly extraordinary dimensions, while all the time preserving its lobular form and its mobility.

"When it has reached so considerable a size, the skin covering it becomes thin, the veins running through this skin dilate and become more visible; the more elevated parts of the morbid mass become more projecting and perceptible to the eye. Some of these projecting parts suddenly become more voluminous than those near them, and may present a bluish tint in the depth of their mass. Generally, at this point, the consistence of the morbid tissue is less hard and often can give even the sensation of true fluctuation.

"The nipple, which until this time had preserved its normal form, *is spread out and even disappears* in consequence of the considerable distension undergone by the skin surrounding it. Sometimes also it is sunken in the breast; this fact is rare, but, when it occurs, the nipple is turned round on itself like the finger of a glove, and, so to speak, *swallowed* in the projecting lobes of the tumours.

> "*The skin then becomes adherent* to the more prominent parts of the morbid mass: it *inflames, it ulcerates by inflammation*, or *falls into gangrene* in extended places, at the level of the regions where it is too thin and too much stretched. At this moment appear *large granulations*, which, coming out of the interior of the neoplasm, emerge from the skin by this loss of substance and thus give rise to *enormous mushrooms*, whose principal character is to be *clearly pedicellated*. Notwithstanding this considerable development of the tumours, *the health of the patient is not altered;* it even remains in some cases almost flourishing.
>
> "The *ganglia of the armpit* are free from all invasion; there is no sign of *general infection*, and were it not for the anxiety and the mechanical annoyance experienced by the patients, they would not be believed to be afflicted with such extensive lesions.
>
> "The period of *ulceration* itself, when it happens, scarcely modifies this sort of indolence of the organism. It is only tardily the health is seen to change; it is modified under the influence of the abundant flow of purulent liquid that takes place from the fungous projections of the tumour.
>
> "Such, in a few words, is the ensemble of phenomena characterizing a *so-called adenoid tumour* in the different periods of its evolution.
>
> "We are going to see how they are modified according to the time when they are studied, and what is the importance they can have as diagnostic signs.
>
> "Among all the phenomena we have pointed out as characterizing the beginning of the *so-called adenoid tumours*, studied in a general point of view, there are several to which we must now return with more details. These phenomena are, among others, the pain, the flowing from the nipple of liquids of different natures, and the influence of the menstrual flux on the neoplasm." (pp. 381–5.)

In the introductory observations to his immortal work, Cooper says:—

> "The result of such knowledge—that is, of the non-malignant nature of certain tumours—is frequently the source of great security and happiness to a person affected with a disease in the breast, as well as of great satisfaction to the surgeon. I have rarely witnessed a stronger expression of delight than that which has illuminated the features of a female, perhaps the mother of a large family dependent upon her for protection, education, and support, who, upon consulting a surgeon for some tumour in her bosom, and expecting to hear from him a confirmation of the sentence she had pronounced upon herself, receives, on the contrary, an assurance that her apprehensions are unfounded."

It makes one shudder with horror to think of what was, a century ago, and perhaps we might simply say before Cooper's time, the condition of the poor creature who had any lump in her breast. We were told that the glands of the breast, after injury, would frequently degenerate into cancer, if not timely prevented. If poultices, plasters, and purgatives did not quickly cure, the operation was to be proceeded with. The patient was to be prepared for it with phlebotomy, gentle purges, aperients, absorbents, and emollients. To remove the breast two strings were passed through it, which, fastened together, made a loop, by which the tumour was suspended; then, cutting around with a razor, the whole pap was lopped off at once. To use a forceps with small hooks, in place of the strings, was a considerable improvement; and so also was the cutting with a bistoury, in place of the razor, so that the skin was pressed perpendicularly, and not slanting. With such a caution, the surgeon was told he did not lay bare the nervous papilla; and avoided great accidents, which are frequently attended with death. To prevent a relapse, a long suppuration was kept up, so as to evacuate the bad serosities with which the flesh and the fat were infiltrated. When we compare this with modern surgery, its powers of diagnosis, its simple appliances and dressings, and, above all, its absolute painlessness—for, as Fergusson says, nothing has transpired in the present century which, in magnitude or importance, can compare in our annals with anæsthesia—we must rejoice at what has been done by our art and science for humanity. In his lectures on the progress of anatomy and surgery during the present century, the distinguished surgeon just quoted says:—

> "It is the boast of those who live in the nineteenth century, that progress in all that pertains to civilization has been greater than in any similar period in history. I cannot venture to claim for surgery the world-wide impression that has been made by steam, by electricity, by engineering, or by mechanics. Yet our art and science have not stood still. If there have been changes and reforms in our laws and civil institutions for the improvement of our social atmosphere—and who can entertain a doubt on the subject?—we may point to our changes, our reforms, our improvements also."

Fergusson might have spoken less cautiously and with more enthusiasm. We may well believe that the improvements in our profession have been far greater, that by them the pains and sufferings of our fellow-men have had more relief than by any changes made in laws and civil institutions.

The changes that have taken place in this nineteenth century are, in some respects, greater than ever took place before in all the past centuries known in history. When this century began, the flash of the lightning did not instantaneously reveal, at any desired moment, what was transpiring in the most distant regions, nor did the forces of vapour give wings to the wheels of cars and the sails of ships. When after the signing of the Treaty of Peace with Great Britain in 1814, the Judge of the Eastern District of Pennsylvania left Lancaster to hold court in the adjoining county of Lebanon, he communicated to the delighted inhabitants the joyful news known in Lancaster two days before. In fact when men then travelled on land there was but little difference between their mode of locomotion and that of Father Abraham, and on sea they were dragged by oars and pushed by the wind, as was Jason when he sought the Golden Fleece. And so in surgery, since the days of Bichat, the progress is greater than that made before since the days of Hippocrates.

Our art and science have not only "not stood still," but they have advanced, and are advancing *pari passu* with the others. And of this advance we do not care to give a better example than the one afforded to us by the authors of the work we have been so pleased to point out to our readers. W. F. A.

Art. XX.—*A Text-Book of Physiology.* By M. Foster, M.A., M.D., F.R.S., Prælector of Physiology and Fellow of Trinity College, Cambridge. 8vo. pp. 559. London: Macmillan & Co., 1877.

The "publishing mania," which seems to have lately taken possession of our physiologists, resulting in the appearance, within the past twenty months, of at least a "baker's dozen" of new or revised physiological text-books, threatens to speedily *glut* the physiological market.

When Dr. Mayer, in 1842, first pointed out the physiological relations of the brilliant discoveries of Joule, Grove, and Helmholtz in the domain of physics, physiology entered upon a new era. We may, perhaps, correctly christen it the era of *positiveness*, in which the physical methods of investigation are applied to the interpretation of vital phenomena.

Animated by this new spirit we have, among recent works on physiology, three text-books, representing as many nationalities, which may be considered as exponents of the new doctrine—Hermann's Elements, by far the most radical of the three, Beaunis' Nouveaux Elements, and Dr. Foster's Text-Book of Physiology, which is the subject of this notice.

In view of the many strong rivals already in the field a new candidate for professional favour must have some marked excellences to secure for it a favourable reception. In our opinion Dr. Foster's Text-Book possesses such excellences, and while we shall have occasion to notice some defects, we predict for it a flattering future.

Dr. Foster is already favourably known to the profession as one of the authors of the best manual on embryology in the language, and also as joint author of a recent work on Elementary Physiology.

From the preface we learn that the author has—

> "Made no attempt to give a comprehensive account of all the statements, conflicting or accordant, which have been made, or of the opinions which have been held concerning the phenomena exhibited by animal bodies. I have rather striven to explain, in as clear and straightforward a manner as I could, the main facts and fundamental principles of physiological science. The student before whom things both new and old are tumbled out of the physiological treasury, without adequate critical appreciation of their respective values, is simply bewildered without being taught; and, finding that the labours of the Physiological Laboratory at Hinauf seem to be chiefly directed to contradicting the results of the laboratory at Hinab, very naturally concludes that he had better pay attention to neither."

While we have here no claim of original work, the author shows in the discussion of every subject that he has fully matured views of his own, and the general method and plan of the work is such as will give it decided character.

There are three prime desiderata in a text-book: brevity, completeness, and clearness, all of which Dr. Foster seems to have kept in mind in the preparation of the volume before us.

However, when we recall the fact that physiology, with its collaterals has grown into proportions so immense that our text-books almost of necessity assume encyclopediac dimensions, we are inclined to consider somewhat critically the method of condensation adopted. It has not been attained wholly by concise expression, for our author is at times quite rhetorical and leads one through his vivid word painting to almost forget the knotty questions under discussion. The physiological anatomy of the various structures and organs of the body is almost wholly ignored, and in the preface we read, "In the presence of Quain's Anatomy, there is no need for a physiological treatise to repeat imperfectly what is there said so well." But when we consider the immense number of facts with which the student is compelled to store his brain; the shortness of his student-life, and the rapidity with which he is necessarily hurried from one branch of medicine to another, we cannot but feel that a brief *resumé* of the physiological anatomy of an organ should accompany the study of its function. Function cannot be intelligently separated from structure.

We must also take issue with the author in the estimate he places upon diagrams and illustrations. "I have moreover given neither figures nor elaborate descriptions of physiological instruments and apparatus. These must be seen, not read about; the student can learn more by five minutes' inspection of a piece of apparatus, especially one at work, than by hours of study of even the most finished and expensive pictures, and most detailed verbal descriptions." It occurs to us that the value of correct plates, in illustration of the text, is too highly attested in medical literature to admit of discussion. They serve to refresh the memory of those who have seen the original, and to those who have not had such an opportunity, which number embraces the large majority of medical students when they begin the study of physiology, they are almost invaluable.

We were much disappointed on turning to Book IV., which treats of "The Tissues and Mechanism of Reproduction," to find this important subject summarily dismissed in about a dozen pages. The profession had reason to expect this subject to be exceptionally well-treated, not slurred over, for no one is better qualified to speak *ex cathedra* than the distinguished author. His work, already published, in connection with Dr. Balfour, on the development of the fowl, is an important contribution to the study of biology, and the profession eagerly awaits the appearance of the second part which will trace the process of development in the mammalia.

The condensed summaries which illustrate the text in almost every section is a most valuable feature of Dr. Foster's work, and one which will recommend itself to the student.

Another commendable feature may be found in the historical accounts of each of the great subjects of which the volume treats, together with appropriate references to the classical authorities. These histories, though necessarily brief, have a wholesome effect in giving the student a more philosophical idea of the subject, than he would otherwise obtain.

The volume before us contains 559 large octavo pages, and is divided into four books, which treat respectively—I.—Blood. The Tissues of Movement. The Vascular Mechanism. II.—The Tissues of Chemical Action, with their Respective Mechanisms. Nutrition. III.—The Central Nervous System and its Instruments. IV.—The Tissues and Mechanism of Reproduction. To which is added an appendix of fifty-three pages, "On the Chemical Basis of the Animal Body," in which is given a brief but carefully prepared account of the various chemical constituents of the organism.

The introductory chapter very appropriately portrays the physiological life of the humble little amœba, in which the vital problems find their simplest expression. The undifferentiated protoplasm of which its body is composed possesses the following fundamental properties: (1) It is contractile. (2) Irritable and automatic. (3) Receptive and assimilative. (4) Metabolic and secretory. (5) Respiratory. (6) Reproductive.

> "Such are the fundamental vital qualities of the protoplasm of an amœba; all the facts of the life of an amœba are manifestations of these protoplasmic qualities in varied sequence and subordination. The higher animals, we learn from morphological studies, are in reality groups of amœbæ peculiarly associated together. All the physiological phenomena of the higher animals are similarly the results of these fundamental qualities of protoplasm peculiarly associated together. The dominant principle of this association is the physiological division of labour, corresponding to the morphological differentiation of structure. . . . In the evolution of living beings through past times, it has come about that in the higher animals (and plants) certain groups of the constituent amœbiform units or cells have, in company with a change of structure, been set apart for the manifestation of certain only of the fundamental properties of protoplasm, to the exclusion, or at least to the complete subordination of the other properties."

The complex body of the higher animals may then be considered as a compound of so many tissues, each tissue corresponding to one of the fun damental qualities of protoplasm, to the development of which it is specially devoted by a division of labor. These separate tissues, with their individual characters, are, however, but parts of one body, and in order that they may become true members of the body politic, working harmoniously together, need certain co-ordinating bonds. These bonds are primarily of two kinds: (1) a vascular bond for the distribution and interchange of material; and (2) an irritable bond, along the strands of which various impulses travel for the regulation of the energy of distant spots in the organism. Still other secondary mechanisms make their appearance as we creep up the ladder of life—as, for example, a special motor mechanism, and a "central nervous mechanism of complex structure and complex function, the complexity of which is not due primarily to any mechanical arrangement of its parts, but to the further differentiation of that fundamental quality of irritability and spontaneity which belongs to all irritable tissues and to all native protoplasm."

This interesting chapter, which we have imperfectly sketched above, furnishes the basis of the classification adopted by the author, and foreshadows some of the distinctive features of the work.

Chapter I. opens with a discussion of the Blood, which is treated of under the following heads: (1) General Chemical Composition. (2) Phenomenon of Coagulation. (3) History of Corpuscles. (4) Quantity in the Body.

The phenomena of coagulation are very clearly presented, and this discussion is one of the interesting features of the chapter. The author accepts the theory of Schmidt as to the formation of fibrin, and concludes that in the present condition of our knowledge the exact nature of the process by which the presence of the three factors (fibrinoplastin, fibrinogen, and fibrin-ferment) leads to the formation of fibrin, cannot be defined more closely than by the phrase "*interaction.*" This explanation, to say the least, is not very definite.

Reserving, as the author does, the consideration of the changes which the blood undergoes in the various tissues until those tissues are under discussion, we are compelled to turn to the chapter on Respiration for a history of the gases of the blood, and for a very excellent and full exposition of the properties of hæmoglobin.

Chapter III. contains a valuable summary of the fundamental properties of nervous tissues. We are glad to see this subject introduced thus early in the book, for it will certainly enable the student to follow more intelligently the various phenomena to be presently described. Beginning with the simple form in which the nerve, as a thin strand of irritable protoplasm, shows itself in the hydra, the development of the typical nervous system is briefly traced.

We are here told that the fundamental and primary differentiation of the work of a central nervous system is into automatic and reflex operations, which are manifested by the brain and spinal cord, and less certainly by the sporadic ganglia.

Dr. Foster does not endorse the view that the spinal cord is a series of automatic centres, and even expresses grave doubts as to whether the spinal cord possesses any automatic functions whatever. In fact, he is inclined to look upon the exhibition of automatism as strictly a function of brain tissue.

> "In the sporadic ganglia the evidence of automatic action seems more clear, and yet is by no means absolutely decisive. The beat of the heart is a typical

automatic action; and since the heart will continue to beat for some time when isolated from the rest of the body (that of a cold-blooded animal continuing to beat for hours or even days), its automatism must lie in its own structures. When, however, we come to discuss the beat of the heart in detail, we shall find that it is still an open question whether the automatism is confined to the ganglia (either of the sinus venosus, auricles, or auriculo-ventricular boundary), or shared in by the muscular tissue; whether, in fact, the automatism is a muscular automatism, like that of a ciliated cell, or the automatism of a differentiated nerve-cell. And yet the heart is the case where the automatism of the ganglia seems clearest."

It may be proper to say in this connection, that Dr. Foster, as we learn from a foot-note in the introductory chapter, does not use the term automatic in the narrow sense suggested by many, but "as denoting an action of the body, the causes of which appear to lie in the body itself."

Passing next to the consideration of the general principles which underlie reflex action, it is stated that the chief seats of reflex activity, in the vertebrata, are the brain and spinal cord, the latter may indeed be considered as a multitude of reflex centres.

The evidence yet obtainable is insufficient to prove that the nerve-cells of the sporadic ganglia possess reflex functions. We have positive evidence to the contrary in the case of the ganglia on the posterior roots of the spinal nerves; and of the larger ganglia, indications of reflex activity are present alone in the submaxillary, and these indications are not beyond dispute.

The chapter concludes with the following statement of the fundamental properties of nervous tissues:—

"Nerve-fibres are concerned in the propagation only, not in the origination or transformation of nervous impulses. As far as is at present known, impulses are propagated in the same manner along both sensory and motor nerves. Sensory impulses differ from motor impulses, inasmuch as the former are generated in sensory organs and pass up to the central nervous cells, while the latter pass from the central nervous cells to the muscles, or to some other peripheral organs. The operations of the nerve-cells are either automatic or reflex. In both an automatic and a reflex action, the diversity and the co-ordination of the impulses is determined by the condition of the nerve-cells. During the passage of an impulse along a nerve-fibre, there is no augmentation of energy; in passing through a nerve-cell, the augmentation may be and generally is most considerable. When afferent impulses reach a centre already in action, the activity of that centre may, according to circumstances, be either depressed or exalted, may be inhibited or augmented."

Chapter IV. on the Vascular Mechanism is one of the best chapters in the book. Two things are pointed out as necessary to enable the blood to become a satisfactory medium of communication between the different tissues of the body. First, the flow of blood must have a certain rapidity and constancy; and, second, this flow must be susceptible of general and local modifications. The former is almost wholly a physical problem, while the latter, depending upon the intervention of the nervous system, is essentially a physiological question.

The study of the physical phenomena of the circulation is introduced with a brief statement of the general facts pertaining to the capillary, arterial, and venous systems. The hydraulic principles of the circulation are clearly stated, and the chief mechanical factors are shown to be the force and frequency of the heart-beat, the peripheral resistance, and the elasticity of the arterial walls.

In speaking of the heart-sounds, Dr. Foster accepts the customary explanation of the second sound, but recognizes in the correct interpretation of the first sound many difficulties, which are briefly stated in the following quotation :—

> "It is heard distinctly when the chest-walls are removed. The cardiac impulse can, therefore, have little to do with it. In point of time, and in the position in which it may be heard to the greatest advantage, it corresponds to the closure of the auriculo-ventricular valves. In point of character it is not such a sound as one would expect from the vibration of membranous structures, but has, on the contrary, many of the characters of a muscular sound. In favour of its being a valvular sound, may be urged the fact that it is obscured, altered, replaced by murmurs, when the tricuspid or mitral valves are diseased: and Halford found that clamping the great veins stopped the sound though the beat continued. On the other hand, Ludwig and Dogiel heard the sound distinctly in a bloodless dog's heart, in which there was no fluid to render the valves tense and set them vibrating. But there is a great difficulty in regarding it as a muscular sound, for a muscular sound is the result of a tetanic contraction, the height of the note produced varying with the number per minute of the simple contractions which go to make up the tetanus. A simple contraction or spasm cannot possibly produce a musical sound, such as is the cardiac sound. The beat of the heart is a comparatively slow, long-continued single spasm, and not a tetanic contraction. The rheoscopic frog answers to the negative variation, accompanying each ventricular systole by a single spasm, not by a tetanus. (Recent researches, however, have rendered it doubtful whether the absence of tetanus in a rheoscopic muscle can be entirely trusted as proving that the contraction which is being tested is not tetanic in nature.) In its long latent period, and in all its characters, the heart's beat bears the stamp of being a single spasm. If so, it cannot give rise to a note. Moreover, in cases of hypertrophy, where the muscular element and action is increased, the sound, so far from being increased, is impaired. . . . The difficulties are rather increased than met by supposing that the sound is at once both muscular and valvular in origin."

We are surprised to find here no reference to Prof. Ceradini, who has so thoroughly studied this question.

The section which follows with the discussion of the pulse is decidedly good, and is enriched with numerous sphygmographic tracings. We are glad to see brought out clearly the distinction between the pulse-wave and the movement of the blood itself. This distinction is far too generally ignored by our physiological text-books. The pulse-wave, it is here stated, travels over the moving blood somewhat as a rapidly moving natural wave travels along a sluggishly flowing river.

Of the secondary waves on the natural pulse curve, Dr. Foster calls special attention to the dicrotic wave, occurring towards the end of the descent, and the pre-dicrotic wave, which immediately precedes it. These are both waves of oscillation, but while the latter is a wave of pure oscillation, the dicrotic needs some especial event to produce it, which event is considered to be the closure of the aortic valves. In thus ascribing a central cause for the dicrotic wave, the author differs from Burdon Sanderson and others, who trace it to a sort of rebound from the periphery.

This brings us to the consideration of the vital phenomena of the circulation. If the physical facts above sketched were the only ones connected with the blood's circulation, "the canon of the life of every part for the whole period of its existence would be furnished by the in-born diameter of its bloodvessels, and by the unvarying motive power of the heart." Such a condition, however, does not exist in living beings. One of the most prominent features of the living mechanism is the power of adapting itself to the ever-varying external and internal circumstances. This adaptability is secured by, 1st, changes in the heart's beat, and, 2d, changes in the peripheral resistance due to variations in the calibre of the minute arteries: to which are added, as subsidiary modifying events, 3d, "changes in the peripheral resistance of the capillaries due to influences arising out of the as yet obscure relations existing between the blood within, and the tissue without the thin permeable capillary walls, and depending on the vital conditions of the one or the other;" and 4th, changes in the quantity of blood in circulation.

The modification of the heart beats through the influence of the vagi and accelerator nerves is very fully described. The effects of the various poisons (atropia, urari, muscarin, jaborandi) on vagus inhibition are treated of in detail.

Section V. treating of the changes in the calibre of the minute arteries, contains the most lucid account of vaso-motor physiology to be found in any text-book with which we are familiar. We infer the author accepts the localization of the vaso-motor centre indicated by Owsjannikow, since no other researches excepting those of Cyon are mentioned in this connection.

In concluding his remarks upon the general vaso-motor centre, Dr. Foster writes:—

> "We have said enough to show that the calibre of the small arteries, which by determining the peripheral resistance forms one important factor regulating the flow of blood, is subject to influences proceeding from all parts of the body, the influences reaching the arteries in a reflex manner by means of the vaso-motor centre, the afferent impulses being for the most part carried by ordinary sensory nerves, while the efferent impulses pass along special vaso-motor nerves, which, though the vaso-motor centre lies in the medulla oblongata, have a great tendency to run in sympathetic tracts.
>
> "Further, since the effects may be either local or general, the local being frequently opposite to the general, there is fair reason for assuming that the vaso-motor centre is a multiple centre, composed of minor centres governing particular vascular areas, so associated together that they may, according to circumstances, act either together or apart."

In addition to this general centre, Dr. Foster holds that there are phenomena which compel us to admit the existence of local peripheral vaso-motor centres, and proceeds to point out such phenomena in the vascular supply of the penis and the submaxillary gland.

Book I. closes with an admirable and most valuable summary of the mutual relations and the co-ordination of the vascular factors, which our limited space alone prevents us quoting in full.

The succeeding one hundred and eighty pages, comprising Book II., are devoted to the discussion of the important subjects of Digestion, Respiration, Secretion, and Nutrition. The tissues and mechanism of digestion are described under the following four heads: The properties of the digestive juices; the nature and regulative mechanism of their secretion; muscular mechanisms of digestion, and the changes which the food undergoes in the alimentary canal.

The physical and chemical peculiarities of the various digestive fluids are briefly but clearly presented. The author, however, asserts much more positively than the facts seem to justify, that hydrochloric acid is the free acid of the gastric juice. The only proof he brings forward is the assertion of Bidder and Schmidt, that the amount of hydrochloric acid in the gastric juice is more than can be neutralized by the bases present. Granting the fact (which is by no means proven, or even generally admitted), the probability is very strong that the excess of chlorine does not exist as free acid, but is united with organic matter. Certainly, the researches of Dr. F. G. Smith on St. Martin, as well as his more recent observations (see last American edition of Carpenter's Physiology), render it highly probable that *lactic acid* is the free acid of the gastric juice, not a mere *secondary product* as is so confidently stated in the text.

Dr. Foster states very positively that "pepsin is not a proteid," and claims that the manifestation of peptic power is at present our only test of its presence. The following statement will hardly go unchallenged in the face of the accumulated evidence, that there can be no true gastric digestion in the absence of pepsin.

> "Peptones closely resembling, if not identical, with those obtained by gastric digestion may be obtained by the action of strong acids, by the prolonged action of dilute acids at high temperatures, or simply by digestion with super-heated water in a Papin's digester. The *role* of pepsin therefore is only to facilitate a change which may be effected without it. Since, in the act of digestion, the pepsin itself is not exhausted, it is clear that the energy which is spent in the conversion of the proteid into peptone does not come from the ferment."

The next section, which endeavours to explain how the various epithelium cells manufacture their various digestive fluids out of a common pabulum, introduces us at once to some of the most interesting and intricate problems in physiology. This section, written in the author's happiest style, is well worth the student's careful attention.

The question which meets us at the very threshold of our inquiry is, does the epithelium merely serve as a filter, draining off from the blood the ready-formed constituents of its secretions, or does the cell, through a subtle chemistry peculiar to itself, manufacture out of the common pabulum of all protoplasm the characteristic fluid?

Preliminary to this question, the author discusses the influence of the nervous system over the secreting cell, limiting himself chiefly to the submaxillary gland, which has been so elaborately studied by various physiologists. After detailing with some minuteness the effects which follow division and stimulation of the sympathetic and chorda tympani, he concludes that the flow of saliva is a reflex action, the efferent impulses of which, through the chorda tympani, directly affect the secreting cells, and while the vascular phenomena may assist, they are by no means the direct cause of the flow.

This brings us to the second problem, *i. e.*, what is the exact nature of the activity thus called forth? In the discussion which follows, Dr. Foster chooses for his text the pancreatic juice, the properties of which have been so thoroughly studied by Bernard and Heidenhain. After emphasizing the fact that the glycerine extract, made from a pancreas freshly removed from the body, does not possess active proteolytic qualities, but that these qualities may be secured by appropriate manipulation, it is stated:—

> "These facts show that a pancreas taken fresh from the body, even during full digestion, *contains but little ready made ferment*, though there is present in it a body which by some kind of decomposition *gives birth to the ferment*. They further show that though the presence of an alkali is essential to proteolytic action of the actual ferment, the formation of the ferment out of the body in question is favoured by the presence of an acid. To this body, this mother of the ferment, Heidenhain has given the name of *Zymogen*. It has not at present been satisfactorily isolated.
>
> "Hence, in judging of the functional activity of the pancreas under various circumstances, we must look not to the ready-made ferment, but to the ferment-

giving zymogen. . . . . Evidently, so far from the proteolytic ferment being simply drained off from the blood, in the first place the actual ferment is formed in the pancreas out of the zymogen, and in the second place the zymogen of the inner granular zone is formed in the cell itself out of the homogeneous outer zone. We have in fact two distinct processes to deal with: (1) The manufacture of zymogen; that is part of the growth or nutrition of the cell, and is slow and continued; (2) the splitting up or conversion of the zymogen into the proteolytic ferment; this is the actual act of secreting, and is rapid and intermittent; this is the form of activity which can be called forth by nervous impulses, the form of activity which is comparable to a muscular contraction. The thought at once suggests itself that the appearance of an acid in the protoplasm of the cell under circumstances similar to those which give rise to the acid formed during muscular contraction, might be the immediate cause of the zymogen becoming converted into ferment.

"In the case, then, of the proteolytic ferment of the pancreas, we have striking proof that the process of secretion, both in its preparatory and executive stages, is a laborious, active, manufacturing function of the cell, and not simply a passive, selective, filtering function. How far this is also true of the other ferments of the pancreas, and of the active constituents of the other digestive juices, cannot at present be authoritatively affirmed, but we have, both in the case of the stomach and of the salivary glands, facts pointing very distinctly in that direction."

Respiration, which forms the subject of Chapter II., is described in the same clear and concise manner which we have found to characterize other portions of the work. We are compelled to omit an analysis of its contents.

In Chapter V., under the euphonious heading, "The Metabolic Phenomena of the Body," we have an attempt "to connect together the food and the waste products, to trace out as far as we are able the various steps by which the one is transformed into the other, and to inquire into the manner in which the energy set free in this transformation is distributed and made use of."

We are first presented with a very carefully prepared history of glycogen. the formation of which in the hepatic cells is the best known example of metabolic activity. The old question is here again revived as to whether the blood of the hepatic or portal veins contains the larger portion of sugar. The author, notwithstanding the researches of Pavy, Tscherinoff, and others, is inclined, in the conflicting state of the evidence, to look with favour upon the old opinion of Bernard, that the liver does normally discharge a certain quantity of sugar into the hepatic vein. However, in view of the liability of error in the quantitive determination of sugar in a specimen of blood, he very wisely concludes that some other method will be necessary to settle the disputed question.

Dr. Foster considers glycogen to be a reserve fund of carbohydrate material, as will be seen from the following quotation:—

"If, however, we admit that the liver is either continually or at intervals reconverting its glycogen into sugar, we are led to the conclusion that the hepatic glycogen is in fact a reserve store of carbohydrate material. And we can accept this conclusion without being able to say definitely what becomes of the sugar thus thrown into the portal blood. We have already (page 247) urged the difficulties which are occasioned by the view that sugar is oxidized in the blood, since we have no proof that the blood can oxidize sugar. Such evidence as we have has the contrary tendency. We may, indeed, suppose that the sugar is converted into lactic acid, and that lactates are directly oxidized in the blood; but we have no positive proof that any such oxidation does or can take place. On the other hand, there are theoretical reasons supporting the view that a certain average composition is necessary for that great internal medium, the blood, in order that the several tissues may thrive upon it to the best advantage; one element of that composition being a certain percentage of sugar. We may suppose that all or several of the tissues are continually drawing upon the blood for sugar, and that hence a certain supply must be kept up to meet this demand; we may imagine, for instance, that muscle is continually, or from time to time needing sugar to build up the contractile material. Hence, when sugar is present in the blood beyond what is needed, the excess is cast out of the body by the kidneys, except that which, passing by the portal vein, becomes converted into glycogen; and, as a matter of fact, we know that more sugar can be injected into the portal than into the jugular vein before it reappears in the urine. When, again, the sugar in the blood is deficient, the lack is at once supplied by a conversion of the hepatic glycogen. Moreover, this view that the glycogen of the liver is a reserve fund of carbohydrate material, is strongly supported by the analogy of the migration of starch in the vegetable kingdom."

This division of the book closes with an account of the "Income and Expenditure of Energy in the Body." Although we are subsequently asked to guard ourselves against adopting the extreme opinion that a muscle is simply a machine for getting work out of the oxidation of non-nitrogenous food, we are here told that "broadly speaking, the animal body is a machine for converting potential into actual energy. The potential energy is supplied by food; this the metabolism of the body converts into the actual energy of heat and mechanical labour."

Dr. Foster accepts the modern doctrine of the force-producing power of the several classes of foods. The discrepancy which exists between the experimental researches of various observers (Voit, Smith, Parkes, etc.) and those of Flint, made on the pedestrian Weston, to ascertain the effect of muscular labour upon the nitrogenous excreta, is said in the text to be "at present inexplicable." Such a statement reads strangely in the face of the careful experiments of his fellow-countryman—the distinguished physiologist of Guy's Hospital—made upon the same pedestrian. Dr. Pavy's experiments were published in the *London Lancet* for last year, and seem to us to point out very fully the fallacy in Prof. Flint's conclusions. Singularly, the name of Dr. Pavy is not mentioned in connection with the subject.

Book III. treats of "The Central Nervous System and its Instruments." This important subject is compressed into one hundred and twenty-two pages, more than half of which (sixty-four pages) is taken up with the special senses. In the space allotted to the discussion, the author has succeeded in presenting the salient points of this intricate department of physiology exceedingly well; but the subject is too immense, and its practical importance too great, to be condensed within such narrow limits without slighting some of its divisions. For instance, less than three pages suffice to dispose of the cranial nerves. There is, however, one compensating feature which we must not overlook, *i. e.*, the very thorough manner in which Dr. Foster has described the influence of the nervous system over the function of each organ and tissue discussed in the body of the work.

We are compelled to restrict ourselves to a single quotation, reflecting the author's opinion upon the presence of localized centres in the cerebral convolutions. The experiments of Hitzig and Fritsch first directed attention to this question, which is now being pursued with so much enthusiasm by our experimental physiologists.

"These experiments (Hitzig, Fritsch, and Ferrier) leave no doubt that there is a connection between galvanic stimulation of the brain-surface and bodily movements; but the exact nature of this connection is at present very obscure. One thing may be at least affirmed, that these cerebral spots are not motor centres in the sense that the co-ordination of the movements takes place in them; for we have seen that the most complete co-ordination obtains in the total absence of the cerebral hemispheres. If there is any real connection between the movements and the gray matter of the convolutions, it must be because the latter has direct relations with the co-ordinating mechanisms placed lower down in the brain. It seems *à priori* unlikely that such valuable material as we must needs suppose the gray matter of the convolutions to be, should be taken up in such, so to speak, menial work as bending or straightening a limb; and the results of subsequent observers have largely diminished the value which was at first attached to Hitzig's observations."

Dr. Foster endeavours to substantiate the above conclusion by a running account of the recent researches of Hermann, Sanderson, Nothnagel, Carville and Duret, and Goltz. He considers the recent observation of Goltz on dogs, to offer most serious objections to the theory of superficial cerebral centres, in any of the forms in which it has as yet been brought forward. These experiments were published in *Pflüger's Archiv*, xiii. (1876), and form one of the most valuable of the recent contributions to cerebral physiology.

We have, perhaps, already sufficiently alluded to the unsatisfactory treatment of "The Tissues and Mechanism of Reproduction," which form the subject-matter of the fourth Book. Under the circumstances, we think the student had a right to expect a fuller exposition of this important branch of physiology from Dr. Foster.

An appendix of fifty-three pages, presenting the chemical features of the more important constituents of the organism, closes the volume.

In conclusion, we can only repeat that Dr. Foster has presented the profession with a text-book on physiology both pleasant in style and trustworthy in exposition. While, in our opinion, in the interest of the student it could be improved in certain directions, some of which have been pointed out in the body of this review, we can confidently recommend it as a faithful exponent of the fundamental principles of that science which underlies all rational medicine. W. J. C.

Art. XXI.—*Clinical Lectures on Diseases of the Heart and Aorta.* By Geo. William Balfour, M.D., St. And., F.R.C.P. Ed., Physician to, and Lecturer on Medicine in, the Royal Infirmary, Edinburgh. 8vo. pp. xvi., 428. London: J. & A. Churchill, 1876.

"Of making books there is no end," and it were but a simple matter for one who holds a smooth pen, and has a happy knack at construction, to build a new book, at short notice, on any medical subject, with the timbers of other men's hewing. Probably there are too many such books. Possibly they bring patients to the compilers, who, by attaching their own names to stolen wares, advertise themselves. Let us hope not; but, in view of the many compilations which empty the purse and lumber the shelf, it is refreshing to read Balfour's Lectures. At the very outset the book bears the stamp of originality, and the reader soon assures himself that Balfour is a thinker and a worker, and that he has written down what he has himself discovered, learned, and proven. It is a treatise on cardiac diseases written *de novo.* We enter upon the subject-matter of the book with enjoyable zest as we learn from the preface that the illustrations were taken by Dr. B. "mainly from patients who have passed from the clinic into the domain of morbid anatomy;" the advantage of which "is the definite connection of certain distinct *pre-mortem* phenomena with equally well-defined *post-mortem* appearances." He tells us that these lectures comprise the essence of his teaching in regard to their subject during the past eight years, and that by publishing this in lecture form, he has been able to avoid any special subject which has not happened to come under his own observation. Many of these lectures have already appeared in the *Edinburgh Medical Journal*, but in the book are several new subjects in reference to which we take the liberty to quote the following from a letter received from Dr. Balfour in 1875:—

"The new chapters are on Tricuspid Regurgitation; The Murmurs Audible in the Pulmonary Area; Vanishing Murmurs; Irregular Action; Secondary Results of Cardiac Disease; Peri- and Myo-carditis; Angina Pectoris and Fatty Degeneration; Treatment of Cardiac Disease in general; besides two new lectures on Diagnosis and Treatment of Aneurism. I think you will find the new matter quite as interesting, and, in some respects, as fresh as that already published. It contains the results of thirty years' practice, and is not, therefore, penned in haste."

The latter sentence lends additional value to the book.

In his preface Balfour gives a brief but interesting sketch of the progress of cardiac diagnosis, mentioning the leading writers on cardiac disease from the days of Harvey down to our own time, and completing the review by giving deserved praise to a book which has received but too little notice on this side of the water, viz.: "The admirable compendium of Von Dusch (1868), which has, in my opinion, no equal in any language as a practical exposition of the art of diagnosing diseases of the heart."

Lecture I. treats of "The Diagnosis of Cardiac Diseases generally, with reference to the Symptoms and Physical Signs," and presents familiar topics in such attractive garb that they seem new; besides much new matter outlined with great clearness. Significant of the broad and practical character of the whole book is the initial sentence: "In gathering together the prominent facts in relation to the circulatory system in any case, few things are more striking than the frequently apparent irrelevance of the symptoms in those who are otherwise ascertained to be examples of severe cardiac disease, if we perhaps except the equally remarkable fact that cardiac symptoms are frequently complained of where no cardiac disease exists."

We are glad to find nearly two pages devoted to the information to be derived from the pulse of cardiac cases when the patient's arm is elevated. In certain cases this is a useful means of diagnosis which is not made prominent, or is left unmentioned, in other works on the heart. The author, however, does not mention the pulse of aortic stenosis, and we think but few fingers have such fine tactile sense as to be able to diagnosticate coexisting mitral and aortic regurgitation by means of the pulse.

Under "Inspection" may be found new and valuable information in relation to visible venous, arterial, epigastric, and hepatic pulsation. Balfour makes a most refined use of palpation, for by its means he detects, or supposes, dilatation, or hypertrophy from the character of the cardiac pulsations. When he reaches the subject of percussion, our author, quite in opposition to the majority of diagnosticians, makes the assertion that "if we set about it in the right way, and correctly interpret its indications of the condition of the heart, percussion is one of the easiest of the problems to be found in this method of diagnosis."

More positive in character, showing too his self-reliance and independence of commonly received opinions, is Dr. Balfour's assertion that the so-called superficial dulness of the heart has *no value whatever* in estimating the size of that organ. "We must have recourse to mapping out the entire area of cardiac dulness both superficial and deep, to use for the nonce the anatomical terms so constantly applied to the acoustic phenomena."

The directions for percussing are clear and valuable, but in the interesting explanation of the intensity, pitch, and clang or *timbre* of the acoustic phenomena, the author goes beyond the depth of those whose ears are not sufficiently sensitive to be appreciative of "over-tones," "harmonics," and "sound-waves."

We are pleased to learn that Balfour considers the finger and Wintrich hammer as the most useful combination in percussion, for we proved their superiority several years ago. The finger is undoubtedly the best pleximeter, and we contend that with the hammer a clearer tone can be produced with less striking force and less subjective pain than by any use of finger-tips. Balfour does not make allusion to the "palpatory percussion" of the Germans. This is accomplished by grasping the handle close to the head of the hammer, on the back of which is laid the pulp side of the index finger. Thus held, the hammer can be made to strike a most delicate yet decided blow; and differences in pitch can be elicited which it is impossible to produce in any other way.

Alluding to the absurdity of Piorry and his followers in attempting to isolate aortic dulness from that of the heart, the lecturer passes on to *auscultation*, and in vivid terms most lucidly sets forth its revelations. As to the mooted cause of the first sound, he takes the sensible view that it is due to the closure of the auriculo-ventricular valves; but we more than suspect that his unmodified declaration that an accentuated second aortic sound is *invariably* caused by dilatation of the aorta, will meet with scepticism.

In connection with the subject of reduplication of cardiac sounds, we regret to find no allusion to unequal innervation, and the consequent unsymmetrical contraction of the two ventricles as a cause of asynchronous closure of the arterial valves. The lecturer is equally silent in reference to the theory that irregular closure of the separate leaflets of one set of valves can cause reduplication of sounds. We should have been pleased to have read his views on these points.

On the subject of cardiac murmurs, Balfour will startle many of his readers by his blunt remark that, "of all the signs of cardiac disease, murmurs are those most usually confided in, and yet they are really those of *least value*." And again: "No murmur, except the one referred to (pre-systolic), can ever be accepted as a definite sign of cardiac disease, ... for there is no royal road to diagnosis more than to anything else. That must be made as Opie mixed his colours—'with brains.'" We trust these crisp statements will awaken the minds of those who delight in the treacherous quicksands of a "snap diagnosis," to the value of inspection, palpation, and percussion, without whose primary and careful aid, Balfour would never consider a diagnosis more than half begun. He admits the occasional occurrence of the mitral diastolic, and considers the pre-systolic murmur a most valuable sign, since it never disappears, and cannot deceive. He likewise records the possibility of a diastolic tricuspid. This portion of the lecture is very original, and of great worth. While he accepts the Corrigan theory that intravascular murmurs are due to vibrations induced by eddies in the blood-current, and which are now known as "fluid-veins," he admits that the rationale of murmurs thus produced, and the manner in which they may be modified by varying circumstances, are problems yet undefined, but thinks that scientists will by-and-by make this fluid vein a principal source of diagnosis. To read and understand this chapter is no child's play, for every topic has received a strictly scientific handling. This is, perhaps, the most characteristic and closely packed chapter of the book, and hence the long notice we have given it.

Lectures II. and III. are upon "Incompetence of the Aortic Valves, and the Progress and Treatment of the Disease."

It is very noticeable that Balfour, under the term "incompetence of the aortic valves," includes both regurgitation and obstruction. Searching the index we find no mention of aortic stenosis, and in the body of the lectures only a by-the-way sort of allusion to this affection *per se*. Indeed Balfour says (p. 46) that "the same cause which is capable of producing a liquid vein at the aortic orifice during the diastole of the heart, must be equally potent during its systole." Hence, probably, his omission of a distinct section in relation to this form of aortic disease. But we do not believe it by any means follows that because aortic regurgitation exists there must necessarily be obstruction, nor *vice versa*. Having accepted as fact the theory that all cardiac or vascular murmurs are due to fluid veins, Dr. B. makes constant use of the phrase "fluid veins." This will make the lectures less easy reading to those to whom the term and its meaning are new.

Aortic diseases are illustrated by three varieties of cases, the analysis of whose phenomena leads the lecturer into a discussion of points which are never very clear, viz., the irregular conduction of diastolic murmurs, the cause of sounds (he calls them murmurs) heard over the arteries, the effect of hydrostatic pressure, etc. The author's opinions are given with such lucidity and decision that we can never mistake his meaning. Without being dogmatic, he differs from other writers with marked resolution. In discussing the cause of arterial sounds, he agrees with Traube in his theory that the systolic sound is due to sudden tension of the arterial parietes. But in regard to Traube's opinion that the diastolic sound is caused by the sudden relaxation of the arterial coats, he is wholly sceptical. He coincides with Duroziez in the belief that this sound can only be created *artificially*. Contrary again to the majority, he does not consider these sounds of importance in the diagnosis of aortic incompetence. If he mean that this phenomenon is not necessary to establish a diagnosis, we can agree with him, but we cannot afford to discard a single evidence of cardiac disease. The position of the patient in aortic disease and its influence upon hydrostatic pressure of the aortic blood-column is made a prominent feature in treatment, and should be carefully studied. The pages devoted to the prognosis and termination of the disease contain new information, and are especially important. The value of digitalis in cardiac lesions is perhaps more intelligently shown by Balfour than by any preceding writer. By its means he has won brilliant results, and his boldness in its administration indicates that the common fear of over-use of this priceless remedy is misplaced. In giving it, his rule is to watch the urine rather than the pulse, and when the daily quantity begins to lessen he then begins to watch the pulse, and if it falter he lays aside the drug until the constitutional effect has disappeared. He considers the tincture the most reliable form of digitalis. He has the firmest faith in the restoration of ruptured compensation by appropriate management. The remarks on pulse tracings are valuable, but Balfour considers the sphygmograph of little practical worth "except in so far as it shows regularity or irregularity of the pulse, because by no form of instrument thus far invented, can we insure that the pressure on the artery shall always be the same." He thinks the relation of events in an artery to the cardiac rhythm can be determined only by the aid of electricity. In describing the sequelæ of lesions of the aortic orifice, embolism and cerebral hemorrhage are not mentioned.

As to prognosis Balfour regards the probability of life greatly in favour of a mitral affection, because aortic incompetence is always accompanied by serious valvular lesion. On the other hand, we recall the remark of Bamberger (*Herzkrankheiten* s. 284): "Of all possible valvular affections, insufficiency in connection with a moderate stenosis of the aortic valves may be regarded as the most favourable and as promising the longest duration of life."

In Lectures IV. and V. we have a gallant and intelligent defence of the pre-systolic murmur, the existence of which has of late been so frequently denied by certain English physicians. Balfour begins with the remark that a systolic murmur, loudest at the apex, and which by the large proportion of medical men is believed to be the sign most distinctive of disease at the mitral valves, is far from being a reliable sign, because such a murmur may be only temporary and non-significant of disease, while the pre-systolic murmur can never deceive and rarely disappears. He regards the common term pre-systolic a misnomer, and follows Gairdner in calling the murmur auriculo-systolic. In diagnosticating this affection, in addition to the significance of irregular pulse, he lays greatest stress upon the rhythm of the murmur. Unless we find that the pulsations of the carotid are subsequent to the murmur, we are apt to be deceived, and he criticizes Flint[1] for a lack of precision in this respect, which led him to describe as pre-systolic, murmurs which must have been diastolic in rhythm. This occurred in three cases in which Flint diagnosticated the pre-systolic murmur during life; but in which post-mortem the aortic orifice was found to be diseased, the mitral orifice healthy. Our attention is also directed to reduplication of the second pulmonic sound as being not only significant of mitral stenosis, but as a phenomenon of considerable importance in obscure cases. A case is quoted in which there was absence of the murmur, the diagnosis, as proved post-mortem, being correctly based upon this reduplication of the second pulmonic sound. Another pathognomonic symptom is "the thumping character of the first sound, especially when accompanied by pre-systolic thrill." In these lectures is a readable account of the mechanism of the rare diastolic mitral murmur. In common with Von Dusch, Balfour considers congenital mitral stenosis as the probable result of intra-uterine endocarditis. One of the concluding remarks of Lecture V. is that "We *never* have mitral stenosis without regurgitation." In reference to the coexistence of these affections, Bamberger, Skoda, Flint, Gerhardt, Gutmann, Von Dusch, Stokes, etc., say they

---

[1] Flint on the Heart, 1870, p. 207.

"almost always," or "generally," or "in most instances" occur together. So that Balfour stands alone in using the dogmatic term "*never*." As to why we are able to produce comparative rehabilitation of the cardiac muscle more easily in certain cases of mitral stenosis than in others, he makes the interesting remark that he believes the answer to be especially found in the period of life at which the stenosis primarily occurred.

Lecture VI. is one of the most valuable of the book, and should be carefully read. It treats of curable mitral regurgitation, its causes, signs, and treatment. We cannot, however, accept the opening assertion that "the only unequivocal proof of disease of the mitral valve is the determination of the present or former existence of a pre-systolic murmur." This remark leads up to the key-note of the lecture, viz., that many systolic mitral murmurs are the effect of some other derangement than cardiac disease, are curable, and hence the physician must not be too ready to consider a mitral regurgitant murmur as pathognomonic of incurable cardiac disease. To an altered relation of the blood to its containing vein is ascribed the origin of the venous murmur in chlorosis, which of course is the chief cause of curable mitral regurgitation. The arterial bruits heard near the base of the heart in chlorosis are supposed by Marey to be due to diminution of arterial tension, which facilitates the production of sonorous veins at the arterial orifice. Balfour, we think, successfully disagrees with Marey upon this point, first, by proving that there is actually an increase rather than diminution of arterial tension; and secondly, by showing that the so-called arterial bruit is not to be heard over any artery whatsoever, but is strictly auricular in its source.

He accepts as true the theory of Naunyn that the systolic murmur of chlorosis, best heard in the pulmonary area, does not originate in the pulmonary artery, being most clearly heard exactly over the spot where the left auricular appendix comes up from behind just at the left of that artery. The auricle being dilated, Naunyn attributes the localization of the murmur in this vicinity to the fact that the regurgitated blood creates fluid veins whose vibrations are by conduction made louder at the point of impingement than at the place of origin. This is a valuable statement. We then find the interesting assertion that the same depravation of blood and consequent relaxation of cardiac muscular tissue, so marked in chlorosis and acute rheumatism, is even more exquisitely developed in chorea, and that hence the mitral murmur in the latter affection may be referred to the same cause as that to which we may refer the murmurs in the diseases just mentioned. The weakness of the cardiac muscle permits dilatation of the left ventricle. This condition pulls apart the cusps of the mitral valves and hence the regurgitation. We cure the latter by giving tone to the ventricle by digitalis, iron, and rest, digitalis being "paramountly requisite." Balfour advises that in these affections stimulants be avoided in young persons, and that they be used with caution, even in elderly individuals.

Lecture VII. treats of tricuspid regurgitation, curable and incurable. We find mention of four cases of this rare lesion, which have been treated in the Edinburgh Infirmary within ten years. Dr. Balfour regards hepatic pulsation which is retarded, and not synchronous with the cardiac systole, as an important diagnostic phenomenon in this lesion, more so, perhaps, than jugular regurgitation. Mitral stenosis is mentioned as the most frequent cause of this form of valvular lesion, dilatation of the right ventricle being antecedent to the regurgitation. "By treatment," says Balfour, "we may be able to re-habilitate the tricuspid valve, but unless we can also re-habilitate the mitral we gain only a temporary postponement of the end. Hence, prognosis in such a complication is grave. In treating these cases, whatever other remedy may be used, we must never omit digitalis."

In Lecture VIII. we find a most readable exposition of the causes and varieties of murmurs audible in the pulmonary area. There are two principal varieties: (*a*) Those which, as Naunyn teaches, are due to mitral regurgitation, the murmur being conducted to the cardiac base; (*b*) murmurs which probably have often been incorrectly diagnosticated, and which, according to Quincke, whose views are adopted by Balfour, are due to a flattening of the pulmonary artery in cases in which the left lung, from some cause, being retracted, the artery is compressed in systole against the chest wall. Hence, in a normal condition of the heart and vessels, a localized murmur which could not arise if the left lung interposed, as it normally does, between the pulmonary artery and the thoracic parietes. Murmurs thus caused disappear on deep fixed inspiration.

Another cause of murmurs in the pulmonary area is supposed by Quincke to be owing to mitral stenosis, in which the right ventricle is hypertrophied but not dilated, while the pulmonary artery is dilated. The murmur arises at the orifice of the artery from fluid veins which form as the blood passes through the comparatively narrow healthy opening into the dilated artery beyond. Case XXXIII. in this lecture will be found of rare interest, and the whole lecture a solution of some of the puzzling problems of the pulmonary area which is so fitly termed the "region of romance."

No portion of the book contains more valuable hints than does Lecture IX. It treats of the variation and vanishing of cardiac murmurs. Cases are cited in which murmurs appeared and disappeared, and which had led medical men of ability to form opposing opinions, because they relied chiefly upon the existence or non-existence of murmurs. As we have already seen, Balfour gives to murmurs a very low place in the train of diagnostic symptoms. He, therefore, reads a severe lesson to physicians who incline to magnify the value of the presence or absence of murmurs as a *sine qua non* to diagnosis. In the absence of any other evidence of cardiac lesion, or of any congestive pulmonary affection, "persistent accentuation of the second pulmonary sound," says Balfour, "may be accepted as a certain indication of a mitral lesion." Curiously enough, he nowhere mentions the fact that we frequently can call forth a murmur, otherwise mute, by requesting the patient to run up stairs, or walk quickly for a moment or two. The lecture on irregular and intermittent pulse, and on cardiac and aortic palpitation, presents very clearly the symptoms, causes, and treatment of these affections.

In his remarks upon the nervous systems of the heart, Balfour expresses doubt as to whether we have yet "sufficient information relative to the actual and reciprocal action of these two systems on the heart" [excito-motor and inhibitory], "to warrant their acceptance in the ordinary meaning with which their names are employed." This will surprise those who long ago accepted the views of modern physiologists in regard to these two forces of the heart. Balfour is evidently a good doubter, and this fact does not detract one jot from the worth of his book. But this last doubt is a heresy which might bring Traube out his grave.

Balfour mentions the fact, new to us, that so long as the fœtus remains *in utero* intermittent action of the heart is unknown. "Extremely irregular action of the heart is almost pathognomonic of mitral stenosis," says Balfour, and he accepts Elliotson's correction of Corvisart's opinion that great irregularity in force and frequency of the pulse is due to narrowing of the aortic orifice. Says Elliotson: "I do not recollect a pulse irregular in force and frequency in a single case of narrowing of the aortic orifice solely, while I know it is very common in narrowing of the mitral opening, though possibly not peculiar to it, nor indeed to narrowing of any opening." A noteworthy point is that in relation to the production of cerebral anæmia by weak heart. This occurs in cases in which the radial pulse ranges from 20 to 30 in the minute, not because the cardiac action is slow, but because many of the pulsations fail to reach the periphery. In such cases there is usually a gouty heart, but the pulse and head symptoms might easily lead the physician to consider the brain the source of their cause, while it is the heart which needs treatment. And nothing in such a contingency, according to Balfour, can take the place of digitalis. Much of this lecture is devoted to treatment, and wherever Balfour touches upon this topic he will be found original, and whatever he says is the result of wise judgment and rich experience. An entire lecture upon treatment occurs later in the book, hence we will here merely quote his remark that he has found that epigastric pulsation, dependent upon irritability of the abdominal aorta, will invariably yield to full doses of the bromide of potassium in some bitter infusion.

In Lecture XI. on secondary results of cardiac disease, there are so many shrewd hints, and so much fresh information, which we are tempted to quote, that we must refer readers to the pages themselves. We would call especial attention to remarks on embolism. Not the least interesting are the allusions to the secretion of urine as a most sensitive test in judging of the progress of heart disease. Diminution of the daily quantity of urine, depending as it does on defective arterial pressure, indicates a transference of that pressure to the venous system. A small amount of albumen in the urine, therefore, is an important sign of intra-venous pressure in cardiac disease. A large quantity of albumen, especially when accompanied by tube-casts, would rather point to a renal affection.

In Lecture XII. we have Balfour's views on "Angina Pectoris, upon other forms of Cardiac Pain, and some remarks on Diagnosis of Fatty Heart." The latter subject may be at once dismissed with the remark that Balfour does not believe it possible to diagnosticate fatty heart. We are glad to find he believes that angina pectoris is not necessarily dependent upon disease of the heart or aorta. It is time that this view should meet with general acceptance, for the too-common belief that an attack of angina indicates cardiac disease is not only absurd, but is fraught with too much of evil consequence. He agrees with Romberg in his opinion that the affection is a neuralgia of the cardiac plexus. As to its predisposing cause, he advances the original and plausible opinion that it is due to anæmia, general or local in origin, of the cardiac plexus. Its exciting cause, he thinks, is something which still further cuts off the blood supply, or in some other mode injuriously influences the cardiac nerves. Fatty, flabby heart is obviously not a cause, but, like the predisposition to angina, merely a result of defective blood-supply. Some years ago, Nothnagel (*Schmidt's Jahrbücher*, 1867, ii. Band) gave to angina pectoris the term "angina pectoris vaso-motorea;" and recently Fothergill (*Phila. Med. Times*, 1876) has said: "We now understand this disease—it is vaso-motor spasm." Of this theory, however, Balfour says nothing; but coincides with Anstie's opinion that angina pectoris is a form of inhibitory paralysis of the heart. We must say that this opinion does not seem by any means to cover the symptoms of this painful affection. In his vivid portrayal of the symptoms he does not mention the loss of the left radial pulse during an attack. This curious symptom was, we believe, first recorded in a paper on angina pectoris in this Journal for October, 1875. While Anstie deems chloroform a very dangerous remedy, Balfour amazes us by saying that "so far from being unsafe in cardiac diseases, it is often of greatest use in angina pectoris. It not only relieves pain, but regulates the circulation; now and then bringing back the pulse to the wrist, whence it had apparently fled forever." He has very often used nitrite of amyl, but finds that his patients prefer chloroform, and it is his usual remedy. "It acts more quickly, as effectually, and *is perfectly safe!*" If so arranged as to be inhaled only in small doses, "*it is not even necessary for a medical man to administer it!*" The American reader will here doubt the soundness of Balfour's judgment. His success in this use of chloroform is only a remarkable coincidence. We fervently trust his example will not be followed. He is undoubtedly more correct in his statement that there is no better prophylactic tonic against cardiac neuralgia than arsenic, which he gives in the form of Fowler's sol. in five-drop doses t. d.; also iron, if necessary.

Lecture XIII. contains valuable advice relative to the diagnosis and treatment of "peri- and myocarditis and cardiac hypertrophy apart from valvular diseases." Rheumatic pericarditis appears to be a remarkably rare affection in Edinburgh. In addition to other sensible remedies, Balfour recommends milk diet. He makes these characteristic remarks: "The treatment of pericarditis almost invariably merges into the treatment of some other disease; and I see no reason why, because the pericardium becomes accidentally affected, we ought therefore to change our treatment and let loose the dogs of war. Rheumatic pericarditis is a disease which will run its course favourably the less it is interfered with. What is required is local palliatives and constitutional treatment, which must be directed, not to the pericarditis itself, but to the disease with which it is associated." In all ordinary cases he believes it to be unnecessary to tap the pericardium.

In regard to hypertrophy apart from valvular disease, Balfour states that almost all his cases of excited action with hypertrophy and without valvular affection, have either had a distinct syphilitic history or have yielded to anti-syphilitic treatment. In these cases digitalis is to be avoided, and is always injurious. The iodide of potassium is the only effectual remedy.

Lecture XIV. is confined to cardiac therapeutics. It is an excellent lecture, packed full with good things which it would be difficult to find elsewhere. Digitalis is *par excellence* the favourite remedy, even in cases of aortic regurgitation and stenosis, in which by many writers the drug has been considered dangerous. Indeed, Balfour says: "Aortic regurgitation is the one disease in which its use requires to be most freely pushed, because we desire to produce firm contraction of the apex and diminution of the ventricular cavity, the commencement therefore of its poisonous action. But for this very reason we must watch its use most carefully in this disease, and pretermit its use at once on the slightest indication of over-action. In measuring the tendency to over-contraction, the most sensitive test we have is the amount of urine passed." To this we have already referred. Alluding to the common belief in its cumulative action, he asserts that in merely tonic doses digitalis may for years be safely given. As to its dangerous effect upon fatty hearts, he says, first: "It is impossible to diagnosticate a fatty heart;" and, secondly: "We must not be driven from the employment of digitalis by any theoretical hypothesis;" and he supports his assertion by citing cases in which the remedy did only good. As before remarked, he relies only upon the tincture, and in proper cases gives it in half drachm doses, the ordinary dose being ten drops t. d. "Ergot," says Balfour, "I have never found of the slightest use." Next to digitalis he considers arsenic our most valuable remedy: "its effect in removing pain of anginous character is really marvellous, and it has an important tonic effect upon the cardiac muscle." Nitrite of amyl and chloroform, also iodide of potassium, his remedy in syphilitic hypertrophy, have already been mentioned. *Rest* is emphatically recommended, to be followed by exercise so soon as the heart has in some measure regained its power. Most cases of cardiac dropsy may be left to digitalis, which may sometimes be combined with squill. In ascites, Balfour prefers tapping to purgatives; but when the patient objects to the trocar, he uses elaterium and croton oil alone or in combination. After tapping or purging, he finds no diuretic so useful as copaiba or raw onions—if the patient will only eat enough of them; digitalis being always indispensable.

Lecture XV. treats of malposition of the aorta due to rickets and simulating aneurism. In this chapter Balfour's shrewdness and skill as a diagnostician are eminently shown in cases which illustrate the subject. The differential diagnosis between malposition of the aorta (in which a pulsating tumour simulates aneurism) and true aneurism is made beautifully clear. "Whenever over any abnormal pulsation we have marked accentuation of any abnormal, but especially of the normal, particularly the second sound, we must be suspicious of the existence of a sacculated aneurism, and that even though rickety malformation of the chest be present. To make our diagnosis certain, however, we must be able not only to connect the pulsation directly with the aorta, but to show also that the dulness subtended by that pulsating body occupies a space greater than would be the case were the pulsation due to a simple cylindrical vessel such as the aorta." These, together with evidences of pressure upon one or more neighbouring organs, are the signs upon which he relies in diagnosis of an aneurism. We find fresh and solid information in Lecture XVI. "on the diagnosis of aortic aneurism." One of the first points which strikes us is the assertion that "Aneurismal pulsations are usually more forcible than those of the heart." This is a symptom upon which Balfour lays greatest weight, which he considers almost pathognomonic, and which he claims he was the first to bring to the notice of the profession as an important sign. Among other symptoms of aneurism, dyspnœa, dysphagia, pain, pressure upon the bloodvessels are discussed most edifyingly. But in his reference to the aneurismal differences between the radial pulses, he makes no mention of the effect of aneurism in the descending portion of the aorta upon the arterial pulses of the feet. While he does not regard pain in thoracic aneurism as a distinctive sign, or more than a valuable warning, in obscure cases of abdominal aneurism Balfour considers severe neuralgic pain, which sometimes affects the bowels, at others passes along the spine into the extremities, and otherwise unaccountable, as a distinctive symptom. The variation and unexplainable disappearance of the pain for months at a time he thinks to a certain extent confirmatory of the diagnosis of aneurism. He runs through the various forms of treatment, and finally discards them all for iodide of potassium, the use and brilliant results of which he describes in Lecture XVII. With the exception of Tufnell's plan of perfect rest, and his own treatment by the iodide, he pronounces all modes of treatment as attended with risk or danger. He does not attempt to explain the action of the iodide; he confesses that this treatment has been based entirely upon empirical observation, and claims that it is, therefore, free from speculative ideas. It relieves pain and causes the formation of solid clots in the aneurismal sac. In some cases it irritated the stomach, brought on diarrhœa, and caused other unpleasant effects; but in nearly all he was able to return to it without renewal of the contraindication, and continue its use for months. He often gives three half-drachm doses daily. This treatment is profusely illustrated by cases in which results, aided by the recumbent position, were certainly remarkable. Balfour does not claim that aneurism can be cured by this remedy, or by anything else; but says: "I am perfectly certain that, at the present day, we possess no other remedial agent or mode of treatment which so surely gives relief or so frequently prolongs life as the iodide of potassium. While, therefore, I freely acknowledge the importance of recumbency, as insisted upon by Tufnell, and even admit the possible utility of limited diet within reasonable bounds, I claim for the iodide that it is capable of relieving aneurism in a most remarkable manner without any other treatment whatever, though its success may be promoted by such treatment."

Balfour's style is generally very clear and enjoyable, yet we occasionally find sentences half a page long, wheels within wheels, which are somewhat confusing; and here and there English which is actually bad. In common with other medical writers of Great Britain, he uses the term "diagnose," which offends the eye as sorely as a word misspelled. Worcester does not give the word "diagnose." Webster sets it down as "rare;" and rare it ought to be, for it is neither euphonious nor correct, diagnosticate being alone allowable in elegant English. He has made a serious and vexatious mistake in not heading his pages with the subjects of the various lectures. One is therefore obliged to turn without cessation to the index. This is annoying. If, too, Balfour had followed the example of Von Dusch by indicating the subject of every paragraph in the margin of the page, his book could be read with much greater convenience. It is handsomely printed, and, as a whole, especially in matter, is one of the best treatises we have ever read; and, if we were asked to recommend a work on cardiac disease, we should most decidedly say read Balfour.

H. O.

ART. XXII.—*The Practitioner's Handbook of Treatment; or, The Principles of Therapeutics.* By J. MILNER FOTHERGILL, M.D., Member of the Royal College of Physicians of London; Assistant Physician to the City of London Hospital for Diseases of the Chest, Victoria Park; Assistant Physician to West London Hospital. 8vo. pp. 575. Philadelphia: Henry C. Lea, 1877.

EVERY art or science in process of evolution passes through certain well-defined stages of existence. The data upon which each one is founded are perceived disconnectedly at first here and there, perhaps a few at a time; and finally as these facts become more numerous, and their close relation more obvious, the human mind by a series of reasonings is capable of formulating them into classes. So it is with therapeutics, which is an art as well as a science. In the development of this branch of medicine, the human mind has been busily employed for the last two thousand years in collecting and hoarding up invaluable facts, but has, until within a comparatively recent period, not only been satisfied with the crude possession of this raw material, but has stubbornly resisted every effort to formulate or organize this store of knowledge. Indeed, it has held that the highest aim of medicine consists only in obtaining a clear notion of the symptoms, course, and condition of disease, together with the indicated remedies, without being allowed to indulge in any pathological hypothesis, or explanation of the *modus operandi* of medicines; in fact, this last was considered a medical heresy. These were and are the so-called practical men of the day, and they represent empiricism in its purest form. Now, we do not discountenance empiricism as long as its practice is necessary, but honour it for the good which it transmits to us; yet every one must know that it requires almost a life-long experience to acquire such knowledge, which, unfortunately, is not within the reach of the younger members of the profession, and to whom especially such a method of study offers but a gloomy immediate future. Such a state of things has caused a noted authority to say that though "many persons of great experience practise moderately empirically, he who begins upon principle, and then profits by experience, must become a much more skilful practitioner."

But there are not wanting men who even hold the decided opinion that therapeutics can never approach anything like a certain science. Indeed, the mass of the profession to-day is guided by the blind laws of empiricism, and there are many who are not slow in manifesting their disapproval to those who endeavour to place the study of therapeutics on a more rational and scientific foundation. Whether or when therapeutics will ever become an exact study is not our purpose to discuss at present, but it is exceedingly idle and certainly an evidence of a lack of proper intelligence to say that it is impossible, when in the midst of this intellectual and scientific age we observe so many of the simpler arts and sciences, which are built on far less complex data, liable to so much fallaciousness and uncertainty. Let the laws of physiology, of chemistry, of pathology, etc., become more fixed and reliable, and we shall find that therapeutics will advance in a like manner, and become a study of greater exactitude.

The present state of therapeutics would wear a very discouraging aspect had we not the assurance that a better time was approaching. The work which forms the subject of this review is a marked evidence of the transition stage between the old and the new epoch. It retains the usefulness of the past and embodies the valuable advances which have been made in more recent times. The aim of the author is well told in the following language; and how completely he has fulfilled his promise we shall in a measure endeavour to point out by what follows: "The aim of the writer, if it can but be accomplished, is to supply a digest of the general principles of therapeutics, to arrange well-known facts of practice, together with the explanations furnished by pathological research and physiological inquiry, in such array and form, that the treatment of each individual case shall become a fairly intelligent and rational procedure, rather than a groping empirical guess. Failure, even, may indicate to some one else a line worthy of pursuit."

One question of paramount importance at present is that of alcohol, and we shall at once consider it. And although we are not fully convinced that our author himself possesses a very definite and accurate conception of the therapeutic action of this substance, yet it is surely a sign of encouragement to find that he has recorded his opinion in favour of the belief that alcohol is oxidized within the body, and thus produces force for the maintenance of the animal functions. He says on page 230 that "The recent experiments of the late Dr. Anstie and Dr. Dupré have placed beyond all question or honest doubt, the fact of the oxidation of alcohol within the organism. If alcohol is oxidized in the body, then alcohol is a true food or furnisher of force."

The above expression is concise, and leaves no doubt on the mind of the reader in regard to its meaning; and it would indeed be a great credit to the members of the medical profession if they would take intelligent heed of this warning, which strongly indicates the drift of professional opinion on the question of alcohol on the other side of the water; for we must frankly acknowledge that upon no other subject have we found within our perhaps too limited experience, a display of greater superficiality and prejudice than upon this one. It is, indeed, no surprise that the common or non-scientific portion of the people possess such erroneous and fanatical ideas concerning the action of alcohol and the prevention of its evils, when we find the professional men, those who ought to be the leaders of thought in this direction, and to whom frequent appeals are made for their opinion, so very slow in learning to base their views on the latest scientific inquiries. From the former, under such circumstances, not more can be expected; but for the latter, who profess to give this subject all the attention it deserves, no palliation hardly exists. Just let us glance at our abundant literature on this topic, and we shall find the most loose and vague definition of the action of alcohol and of the mode of its administration in disease; and how often do we see and hear medical men who are constantly boasting that they are able to treat the most devitalizing forms of disease without the aid of any alcohol—and this, too, in the face of and in direct opposition to the teaching of clinical and theoretical evidence; no doubt, if the truth were ascertained, much to the detriment of their patients. This is done under the deep-rooted delusion that alcohol, though it affords a passage of safety to the patient across the dangers of disease, will also fate him to become an inebriate. That such unfortunate instances may and do occur we have no desire to deny, yet we hold that they are not of such frequency as the total abstainers would have us believe; and that this does not arise from the simple administration of alcohol, but from an ignorance how to use it properly; for we have firm faith in the rule that in order to do a thing right we must first know *how* to do it.

Such discordant feelings can bring nothing but discredit on medicine; and there is surely no reason why a most noble profession like that of ours should carry such blemishes on its shoulders on account of a subject like alcohol, upon which the most thorough-going researches have been made of late. If it were upon some other topic whose data were less certain there would be some hope of toleration for an erroneous opinion, but investigations on alcohol are ample and sufficient enough to render an intelligent decision in regard to its main characteristic action.

But we are not satisfied that some of the therapeutic principles which are laid down by Dr. Fothergill can be safely followed by those who wish to make inquiry in this direction. That all our remedies must have a fixed action follows from the universal law of the persistence of force, no less than from the oft-recognized fact, which of course is brought about by the above law, that the action of some medicines can be foretold with great accuracy and precision in many instances.

Now a therapeutic principle serves to combine or verify the effects which are common to and are produced by one or a number of remedies, but in treating on the subject of "counter-irritation," our author endeavours to explain the phenomena produced in this process by means of vascular agency; but on investigation we shall find it impossible to believe that the good effects of the so-called counter-irritants can be explained by the fact that in the immediate field of their influence they invite a larger amount of blood than usual, and thus draw the blood away from and diminish cell activity in the diseased part below. He says on page 307 that

> "the good effects here [of counter-irritation] are distinctly intelligible by the law of Schræder van der Kolk, that the vascular supply of the deep-seated parts is derived from the same arterial trunks as that of the superficial parts. Any dilatation of the cutaneous branches and increased blood-flow in the superficial distribution will diminish directly the current in the deep-seated vessels. Thus in inflammation of the pleura for instance—the costal pleura, that is—the application of dermal irritants, either heat or vesicatories, will dilate the cutaneous terminations of the intercostal arteries, and diminish the blood-supply to the pleural arterioles, and so lessen the vascularity of the inflamed area. This is clear enough. In the same way dilatation of the cutaneous vessels of an articulation, say the knee, will be followed by a lessened blood-flow in the deep articular branches of the arterial trunk common to both."

This is the old depletory theory which is certainly involved in several self-evident contradictions. For example, no one doubts the great efficacy of some forms of counter-irritation in neuralgia, especially blisters, yet true neuralgia is always associated with a deficiency of healthy blood, or, in other words, is in a state of anemia—which state, of course, produces a depressed vital activity very readily. Now, draining the blood away from the already half-starved nerve is the height of folly, for it must be very clear that, instead of elevating and improving the nutrition of the suffering nerve, by such a process it would become still further depleted, and its diseased condition aggravated. Or again, take any cutaneous inflammation, eczema for instance, and where, let us ask, is the medical practitioner who has not witnessed a disappearance of the redness and inflammation, and a healthy colour of the skin substituted under the influence of a poultice? The evident hollowness of this theory becomes very glaring in this latter case, for here the counter-irritant is brought in direct contact with an inflamed portion of the skin, and if it were true that this agent relieves disease by simply inviting a larger amount of blood into its immediate vicinity then it should take place here, but instead of this the part becomes paler, and the inflammation disappears. Moreover, if we endeavour to explain by this theory the action of counter-irritants on deep-seated inflammation, as in pneumonia, where their value is universally recognized, we shall find its shortcomings still more obvious. Let us suppose, for the sake of argument, that an inflamed lung contains about ten or twelve ounces more blood than it does in the normal state, and now let a reasonably large blister abstract from the skin and subjacent tissues about two ounces of serum, which is surely a liberal allowance. The drain, of course, falls primarily upon the mammary, intercostal, and thoracic bloodvessels, which are given off by the aorta and other principal vessels. Hence the whole circulation through the medium of the aorta is drained, each portion of the blood receiving its proportionate share. Now, by abstracting two ounces of serum from the whole body of the blood (which amounts to near 300 ounces), we can imagine what an insignificant loss would be sustained by one or both lungs. Such are some of the invulnerable obstacles in the way of accepting the depletion theory of counter-irritation as being the true one, and it is very manifest that a theory which does not make clear all the facts which it is professed to explain must fall to the ground and another one be substituted.

Now, however much capriciousness may be attributed to other remedies, we firmly hold that only one general principle pervades the action of counter-irritants, viz., that of *increasing molecular motion.* All the so-called counter-irritants, whatever their nature, such as cantharides, mustard, nitrate of silver, ammonia, croton oil, iodine, turpentine, the various warm poultices, hot-water dressings, etc., all conform to this law in their action; and though they act with different intensity, yet their action differs only in degree and not in kind, in quantity and not in quality. But since it is conceded that inflammation is a process of increased molecular activity itself, it may seem somewhat paradoxical to recommend its treatment with an agent which tends to accelerate molecular motion, and thus apparently increase the trouble instead of lessening it. We must always recollect that all disease is a process of disintegration, and inclines to diffuse and spread until met and counteracted by healthy molecular motion. All motion, whether molecular or massive, takes place in the line of least resistance or greatest traction, and if the resistance is less on the side of health than it is on that of disease, then diseased motion will spread, *vice versa;* and if there is not sufficient force present in the body to resist and counter-balance the progress of disease, then death must inevitably follow. This resisting power varies in different individuals, and in the same individual at different periods, and it is well exemplified in the processes of mortification and gangrene, where the line of demarcation forms on the battle-ground between morbid and healthy molecular action. Indeed this line may be fixing itself in a certain locality, and the strength of the patient be suddenly depressed still further, thus diminishing the resistance of the body and allowing the line to settle still closer to the central part of the body. And, again, a strong healthy subject is totally exempt from the invasion of these diseases under almost any circumstances, and it is only where is found a vitiated state of the general health that those diseases are prevalent. The same conflict between healthy and diseased action is well witnessed in chronic ulcers where the line between health and disease advances and recedes, making the ulcer appear large at one time and small at another, in direct correspondence with the strength of the patient or the part, and it is a noted fact that the line of treatment which is pursued by all rational practitioners in these diseases is that of endeavouring to maintain or enhance the resisting power of the patient by various means, among which counter-irritants occupy a very important place. In threatened invasion of mortification and gangrene the early application of a warm poultice will often avert the danger, or at least tend to circumscribe it, and limit it to a smaller area than if left to its natural course.

Now the inference which we wish to draw from the above is that, by the agency of counter-irritants, this line of battle between health and disease can be moved or shifted; and that we can deflect disease and diffuse healthy action into regions previously invaded by disease, by inciting weakened molecular action to increased and renewed energy. Upon this view of the action of counter-irritants can be based a rational theory which will explain all the beneficial effects which are derived from their employment. The depressed state of nutrition and oxidation in neuralgia is quickly aroused by their application; counter-irritants, by their power to accelerate molecular motion, aid in oxidizing the morbific deposits in gout and rheumatism, and so give prompt relief to the excruciating distress which these deposits occasion. In inflammation the application of an external stimulus to the healthy tissue which surrounds the morbid process imparts strength and vigour to it, and thus forces and disseminates healthy action into the diseased area.

Great care must be exercised in the selection of the proper counter-irritant, for it is a very easy matter to generate too much molecular motion on the surface, and thus may become a source of aggravation rather than one of benefit to the disease. This appertains especially to the different forms of inflammation. As a rule, the more recent the disease, other things equal, the easier is it influenced and its progress checked; hence the milder counter-irritants, such as poultices, are to be preferred; but, in the well-settled or chronic forms, the more active measures, such as blisters or croton oil, are indicated. Indeed, Dr. Fothergill, on page 318, recognizes the importance of this discrimination when he says that "The utility of blisters in pneumonia is doubtful. The advocates of such a plan have failed to furnish convincing evidence of the beneficial effects produced thereby." And on page 343, in alluding to the treatment of the same class of diseases, he says that, "In acute bronchitis, ... it is of great importance to keep the chest enveloped in large and hot poultices."

But the question may be asked how is this impulse, which is generated by counter-irritants, transmitted into the region of structures which have no direct anatomical connection with the seat of application, as in pneumonia, for instance? To this we reply that we have evidence that such impulses are transmitted in certain other conditions; for example, when one pleura is inflamed it is of very frequent occurrence that the opposite layer also becomes involved; and a single tubercle in the lung often occasions a patch of adhesion between the pleuræ. Other proof could be given, but there can be no doubt that molecular motion is diffused through contiguous textures in the same manner as it penetrates into the deep-seated structures of the joints in gout and rheumatism.

We may just as well here as at any other place enter our protest against the further use of the term counter-irritation, for we believe it to be misleading, and misrepresenting the actual *modus operandi* of these remedies. Though we are aware that some counter-irritants produce an irritation on the surface of the body, yet this irritation is merely the resultant of the violent chemical and physical changes which took place between the agent and the bodily tissues; and we firmly hold that, in order to obtain their constructive effects, this irritation must not be transmitted to the seat of disease. It is the impulse of *stimulation*, and not of irritation, which is communicated to the cells of the body, and which invigorates them.

Of course we can, but in a very imperfect manner, in these few remarks, indicate the general *modus operandi* of the so-called counter-irritants, and if we have failed to give the reader a satisfactory account of what we intended to convey, we hope we have been successful in showing the untenable position of the depletory theory.

Much difference of opinion exists among the members of the medical profession in regard to the action of beef-tea. Some claim that all the benefit which is derived from its administration is brought about through and by the organic salts which it contains; and this view Dr. Fothergill seems inclined to favour, or at least he assigns to it a very inferior position as a food. He says, on page 537, that,

> "As a food, beef-tea ranks low. It contains meat-salts, a small quantity of albumen, and a little gelatine, together with some advanced nitrogenized matters, useless in histogenesis. But there is little in it to repair tissues, and less in it to sustain life; so far as our knowledge yet extends. There is little real force-bearing material in the protean compounds of beef-tea. Little actual force is evoked by the oxidation of nitrogenized componnds in the body. For the starving fever-patient, to give him beef-tea alone, is almost to give him a stone when he asks for bread."

Now beef-tea is a remedy which has had the reputation of a nutriment from the very earliest times in medicine, and we do not feel disposed to pass it by in such a slight and unceremonious manner, for we truly believe, with all due deference to the opinion of the author, that it is a most useful substance to sustain the body under great exhaustion. Beef-tea and alcohol form the sheet anchor in the treatment of fever, in the way of nutriments, and they are both essential because they fill two essential indications in the treatment of these diseases. We agree with the author, however, in this, that "There is little real force-bearing material in the protean forms of beef-tea;" but we must not overlook the fact that it is not the "force-bearing material" alone which we desire and must have in the treatment of fever, for we also need material with which to build up the rapidly wasting tissues.

The eminent Dr. Pavy, in his *Food and Dietetics*, says that "The animal body may be regarded as holding an analogous position to a machine." Now, in order to operate a machine successfully and persistently, two factors are necessary—one a supply of force, and the other a supply of material with which to renew and rebuild the structure of the machine. The former is furnished by the hydro-carbons and carbo-hydrates; and the latter by the nitrogenous and inorganic foods, speaking in a general way. In the case of "the starving fever patient," there is a certain and decided waste of both the force and texture of the body, and the crying and pressing want is a liberal supply of material which will furnish these elements; and both custom and experience point to beef-tea as the tissue-building, and to alcohol as the force-giving food, because they are the most digestible, and assimilable, and nutritious substances which the profession can command under these circumstances.

From personal experience—if this has any weight—we can well testify to the nutritive efficacy of beef-tea, and have ample grounds for disbelieving that its value simply depends on the organic salts which it possesses, or that it ranks so low as a nutriment. Among others, there is one striking example of its usefulness to which we can refer at present. It is a case of inanition in an infant now six months old. The mother of the patient had three children, the first of which was still-born, the second died nine days after birth from inanition, and the third began to decline and fail in health when she was three weeks old. Knowing the tendency to death in her second child, and suspecting that it was due probably to the inefficiency of the mother's milk, we immediately determined on a thoroughly supporting treatment, and ordered fifteen drops of "Valentine's preparation of meat-juice" three times a day, together with diluted cow's milk and lime-water, and, of course, kept up the mother's supply of milk too. The cow's milk, however, had a tendency to curdle in spite of the lime-water, and so was discontinued. The child began to improve in a few days, "and got fat and solid," as the mother expressed it. In the course of a few months the stock of meat-juice became exhausted; the mother concluded to do without it, since the child improved so remarkably; and she relates that on the second day after the meat-juice was left off, "the little girl went quite thin and soft over the whole body, and became very fretful." We ordered a renewal of the meat-juice, and in the course of three or four days the child became healthy and well again, and continues so up to the present time.

Now the body of the rapidly-growing infant demanded something which the inadequate milk of the mother could not supply. That the meat-juice did not merely furnish the salts which it contains is well illustrated by the fact that the child became the possessor of textures which could not possibly have been furnished by these substances, for the child became fat, and her flesh hardened; so evidently there must have been an improvement in the muscular structure at least. Milk is the only natural and suitable food for infants, but in this case we have reason to believe that this child would have been reduced to starvation had she been compelled to depend on the mother's breast for nourishment; and in the meat-juice we found such an efficient substitute for the milk in this case that we almost look upon it as an agent which is equal to milk in point of nourishment, for it well supplied all the elements for development which the child's body needed; and it is an established fact that the greater portion of the albuminous tissue in the body is furnished by animal or nitrogenous food, and we never yet could see any good reason to doubt that the same elements can be supplied to the body in the more concentrated form of beef-tea or meat-juice, and thus make it one of the most desirable tissue-builders that we possess.

On page 45 we notice a typographical error, which is also found in the English edition, and which might lead to disastrous consequences. In transcribing Dr. Foster's formula for an ether mixture to aid the digestion of cod-liver oil, the bulk of the mixture is directed to be increased by the addition of water to eight *drachms*, instead of eight *ounces*, as Dr. Foster directed. As the prescription is printed, the patient would take, at a dose, from twelve to sixteen drops of dilute hydrocyanic acid, which might render the repetition of the dose or further treatment unnecessary.

As a whole, however, Dr. Fothergill's work is a success, and will be welcomed by the profession as a boon. To the young practitioner it furnishes a world of precious advice, especially in the concluding chapter, which discusses the proper relation which he sustains to his patient and to his professional brethren; and we can, after a thorough perusal of the work, with much confidence say, that Dr. Fothergill deserves lasting praise for the pains-taking manner in which he has performed his arduous task, and that, as far as it treats, it is superior to any other book on therapeutics with which we are acquainted. T. J. M.

ANALYTICAL AND BIBLIOGRAPHICAL NOTICES.

ART. XXIII.—*Saint Bartholomew's Hospital Reports.* Edited by JAMES ANDREW, M.D., and ALFRED WILLETT, F.R.C.S. Vol. XII. 8vo. pp. xxiv. 350. London: Smith, Elder & Co., 1876.

AMONG the authors of the various papers in the above volume of this valuable series are Sir James Paget, Mr. Power. Drs. Lauder Brunton, Gee, and Wickham Legg, as well as others already well known to us through their writings. In addition to these old friends there are also a few whose names are less familiar to us, but whose contributions are nevertheless of interest and value.

In accordance with our custom, we shall notice the medical and surgical papers separately.

First among the medical papers is one written by SIR JAMES PAGET, entitled *Some of the Sequels of Typhoid Fever*, which include, according to this distinguished authority, the following diseases: Phlebitis, periostitis, with or without necrosis, especially periostitis of ribs, and local paralysis of muscles. It is common to all these sequelæ of typhoid fever, that they appear when the patient is considered to be well of his fever, Sir James going so far as to say that he does not remember "to have seen or heard of a case in which any of them occurred during the continuity of the fever." This, we are sure, so far as phlebitis is concerned, is a mistake, as we have seen thrombosis of the femoral vein occur on several occasions in the course of typhoid fever, long before convalescence was fully established or the patient had left his bed.

We are less familiar with the other two sequelæ of typhoid fever to which Sir James calls attention, and we doubt whether they are of as frequent occurrence in this country as in England. We shall give his description of the periostitis following typhoid fever in his own words.

"It has," he says, "its most frequent seat on the tibiæ, but I have seen it on the femur, the ulna, the parietal bone. In one case it was symmetrical on the lower parts of the shafts of the tibiæ; but, with this exception, I have not seen it on more than one bone in the same person. It has always been circumscribed within a space of from one to three inches in extent, has always occurred in convalescence, has never been attended with delirium, fever, or other severe symptoms attendant upon acute necrosis. At first it is only marked by the limited, hot, and very tender swelling of the periosteum, and I have seen cases in which the periostitis has remained very long in this condition, and then slowly subsided without necrosis or any other abiding change of structure. When the periostitis has been associated with necrosis, the extent of dead bone has always been far less than that of the inflammation over it, and with rare exceptions only the hard compact structure of wall or outer table has perished. The separation of the dead bone has taken place in the usual way, and has been followed by healing, which, so far as I have seen, has been permanent."

Periostitis of the ribs occasionally occurs, but has never, in the author's experience, been followed by necrosis. Suppuration is more common in this form of periostitis, and may be profuse. It may continue for many months, and in one case referred to by the author was present for two years. In the end complete healing takes place, with depressed scars and entire clearing up of all periosteal swelling.

Local paralysis of muscles occurs occasionally in the convalescence of typhoid fever, but would appear to be rare, Sir James Paget having met with it in only a few cases, and in these the muscles affected were those supplied by the poroneal or the anterior tibial nerve. Nothnagel and others have, however, shown that nervous diseases are of not infrequent occurrence in the convalescence of typhoid fever.

Dr. Samuel Gee reports four cases of a disease which he prefers to call *Phrenitis Æstiva*, rather than meningitis, which, however, it closely resembles, because the anatomical lesions of the latter are often absent, and because the word phrenitis does not involve any questions of pathology. He calls it *Phrenitis Æstiva*, because the cases occurred in summer, and he believes that there is more than a mere coincidence therein.

Dr. J. Wickham Legg contributes a paper entitled *An Examination of the Opinions held as to the Causes of Jaundice*, in which these opinions are subjected to a careful analysis. We fail, however, to find any satisfactory explanation of those cases in which no obstruction to the excretion of bile is found in the gall-ducts after death, and in which, therefore, the discoloration cannot be traced to a reabsorption of bile.

For the sake of convenience, we shall next notice a paper *On the Perception of Colour in Jaundice*, by Dr. J. Wickham Legg and Dr. Vincent Harris. The authors describe the plan they adopted for their experiments as follows: A sheet of paper, upon which were painted many of the various shades of the primary colours, was presented to the patient, and he was desired to name the colours as they were pointed out. Particular attention was directed to the testing of the patient's powers of recognizing blue, green, and red. In every case save two, perfectly correct answers were given, even to minute shades of colour. In two cases in which the patients asserted that they saw yellow, perfectly correct answers were given when their sight was tested by the sheet of colours.

We shall merely quote a portion of the concluding paragraph of Dr. W. Ainslie Hollis's paper, entitled *A Contribution to our Knowledge of the Physics of the Cerebral Cortex*, as it would be impossible, within our limits, to present a satisfactory abstract of it.

"I must warn students of this seductive branch of medical science," the author says, "not to attempt to localize in the cortex too closely the several faculties of the mind. It is preposterous to expect that similar cells are reserved for similar functions in all human brains, knowing what we do of the great diversity in man's mental nature, his various occupations, proclivities, and talents. Beyond the fact that there exists in our brains a posterior or retentive system, and an anterior or expressive system, our knowledge of this organ will not at present permit us to go."

Mr. W. Henry Kesteven's paper on the *Histology of Certain Forms of Degeneration of the Tissues of the Nerve-Centres* is intended as a supplement to some papers by his father in the eighth volume of this series, and in the *British and Foreign Medico-Chirurgical Review*, July, 1874, on the Morbid Histology of the Spinal Cord. The author, however, does not limit himself in this paper to a description of pathological changes in the spinal cord, but includes in his essay those which affect the brain and medulla oblongata.

Dr. F. De Haviland Hall contributes a well-written paper *On the Diagnosis and Treatment of Pleuritic Effusion*, in which he advocates, as he does in the preceding volume of this series, the employment of the drainage-tube of Chassaignac in cases of empyema, where one, or at most two, tappings are not followed by a cure.

Dr. Norman Moore reports two more *Examples of Malformation of the Heart*. The first of these is remarkable, on account of the age to which the patient lived; being 57 years old at the time of his death. During life his face, neck, and ears were slightly deeper in colour than natural. An increase of cardiac dulness, a heaving and somewhat irregular cardiac impulse, and an indistinct systolic murmur, loudest at the base of the heart, but very faint everywhere, and not louder to the right than to the left of the sternum, were the physical signs noticed on examination of his chest. On palpation no thrill was felt. He complained of attacks of severe pain about the base of the heart. He had served his full time in the army. After death the heart was found to be greatly hypertrophied and dilated in all its chambers, but the valves were normal. The aorta abruptly narrowed, so that it would only just admit of the tip of the forefinger at the point of junction of the ductus arteriosus (which was closed).

In the second case the patient died at the age of 20. During life she had suffered from shortness of breath, and had generally presented a cyanotic appearance, especially after exertion, or during an attack of pulmonary catarrh. The physical signs were a slightly increased impulse and a very loud systolic murmur, loudest at a point midway between the left base and the apex, and audible, but with diminished loudness, at the angle of the scapula. Besides these signs, on some occasions a præsystolic murmur was to be heard at the apex, and a slight thrill to be felt over the cardiac area. The post-mortem examination showed that the heart was hypertrophied, and that the right ventricle was markedly dilated. The tricuspid valve was fringed by closely-set growths; there was a similar series of growths on the mitral valve. The pulmonary orifice was contracted by a partial fusion of its valves. The ductus arteriosus was closed; the aorta and its valves were normal. At the uppermost part of the ventricular septum there was an opening about equal to a sixpence in area. This opening had rounded, muscular edges, and its upper edge was close to one of the aortic valves. It of course permitted free communication between the ventricles.

Mr. NEVILLE HART gives the histories of fourteen cases of *Epidemic Cerebro-Spinal Meningitis*, nine of which ended in death. They do not appear to have presented any unusual symptoms.

The account of the *Researches made in the Physiological Laboratory of St. Bartholomew's Hospital*, under the direction of Dr. T. LAUDER BRUNTON, will be found well worthy of careful study. The first substance experimented with was a bark called casca, which is obtained from the Erythrophleum Guinense, one of the natural order of the Leguminosæ. It is used by the natives in Sierra Leone and in Angola as an ordeal poison. Dr. Brunton's experiments show that a watery extract of the bark produced in warm-blooded animals nausea, succeeded by violent and repeated vomiting, increased frequency of respiration, staggering gait, inability to stand, and finally complete paralysis. This paralysis Dr. Brunton attributes to disturbance of the circulation, and not to any special action upon the nerve-centres.

In regard to the probable uses of casca in medicine Dr. Brunton says: "Its action is exerted chiefly upon the stomach, circulatory apparatus and kidneys. Its action upon the stomach seems to be rather a drawback than otherwise, as it would have been highly advantageous to have had a drug which would act like digitalis upon the heart without producing the sickness which sometimes obliges us to discontinue the use of the latter. As, like digitalis, it strengthens the heart while slowing its pulsations, it will be useful in mitral disease, and its diuretic action will prove serviceable in dropsy arising from this cause. At the same time its more powerful action upon the vessels leads us to hope that it will be useful in advanced cases of cardiac dropsy when digitalis fails. This power of contracting the vessels also indicates that it will prove a useful hæmostatic, more powerful than either ergot or digitalis, the virtues of which it seems to combine."

A number of experiments were also performed to test the antagonism between strychnia and hydrocyanic acid, from which Dr. Brunton draws the conclusion that although hydrocyanic acid may somewhat lessen the tetanic convulsions produced by strychnia, it cannot be employed as an antidote to that poison with any hope of success.

The paper also contains some preliminary notes on the physiological action of nitro-glycerine, at the conclusion of which we find the following paragraph:—

"From our experiments it would then appear that nitro-glycerine agrees with the nitrites in not lessening the oxidation of guaiac by vegetable solutions, in causing the blood of animals poisoned by it to become of a chocolate colour, in acting as a muscular poison, and in diminishing blood-pressure. Its action in this last respect is, however, much less than that of nitrite of amyl."

It occurred to Dr. Brunton and to some of his collaborators that the failure of sulphate of copper to produce emesis when injected directly into the circulation might be due to the solution of this salt forming a coagulum with the blood in the vein into which it was injected, and thus never reaching those parts of the nervous system which are concerned in the production of this act. For the purpose of avoiding this source of fallacy, a solution was made by adding sulphate of copper to white of egg, and digesting the light blue coagulum thus formed with pepsin and dilute hydroclorie acid, or with pancreatin until it was dissolved. From the experiments which he made with this solution, he draws the following conclusions: (1) That cupric peptones injected into the blood cause retching and vomiting. (2) That previous section of the vagi does not prevent the retching, but interferes with the evacuation of the stomach. (3) That section of the splanchnics appears to prevent retching. (4) The absence of vomiting after section of the splanchnics indicates that copper probably exerts an emetic action by irritating the stomach or intestines, and thus acting reflexly on the vomiting centre in the medulla oblongata, rather than by its direct action on the medulla itself.

The paper concludes with the report of some experiments performed to test the influence of quinia and sulphuric acid upon reflex action. It was found that sulphate of quinia, with sulphuric acid, caused great diminution, or complete abolition of reflex action, but no tetanus. The dilute acid alone caused great diminution of reflex action, not quite so great as that occasioned by the sulphate of quinia dissolved in acid, but like it without tetanus. It will be recollected that Chaperon believes that quinia prevents the paroxysm in ague by its inhibitory action upon Setschenow's centres arresting the spasm of the vessels.

Mr. ROBERT BRIDGES' report of *A Severe Case of Rheumatic Fever treated successfully by Splints* suggests a plan of treatment in this painful disease which, if not entirely novel, will be new to many of our readers. Finding that his patient seemed to be dying of sheer pain, he determined to have splints applied to the extremities with the view of relieving the pain. This they not only did, but they apparently caused a fall of temperature 1.4°; showing that a part at least of the fever was caused by the irritation of the local inflammation. The patient subsequently made a good recovery.

We fully agree with Mr. JAMES KINGSTON BARTON in the opinion he expresses in his article *On Medical Ophthalmology*, that the ophthalmoscope is still too exclusively left in the hands of ophthalmic surgeons, whereas there is not the slightest doubt that every physician, aiming at excellence in diagnosis, should be well acquainted with its practice and use. The cases in which it is likely to be useful are very fully referred to in the course of the article.

A great many interesting cases will be found in Dr. LEGG and Mr. ORMEROD'S *Report from the post-mortem Room*, but unfortunately we are obliged to dismiss this paper with this brief notice.

Mr. R. Wharry, in his report of *Two Medical Cases*, gives the history of a case of meningitis, ending in recovery, and of a case of leukæmia lieno-lymphatica, in the course of which embolism of the left middle cerebral artery occurred and apparently accelerated the fatal issue. J. H. H.

According to our custom, we now invite the attention of our readers to some of the surgical papers in this volume; and the first is entitled *Cases in Surgery*, by Mr. Luther Holden. This paper contains the clinical history of three cases: a compound dislocation of the shoulder, and two cases of popliteal aneurism. The treatment of all three was successful. The aneurisms, both in young men, were caused by a fall in one case and a strain in the other. They were both cured by digital pressure applied to the femoral artery. The pressure in one case was applied for fifteen hours only, six hours the 1st day, and nine hours the 2d day. In the other case, pressure was applied for ninety-two hours, and extended over eleven days before the desired result was obtained.

The case of compound dislocation of the shoulder was in a young man aged 19. It was occasioned by machinery. The head of the humerus was forcibly brought through the skin of the axilla. The patient being young, and the main bloodvessels and nerves having escaped injury, it was decided to reduce the dislocation and attempt to save the arm. The reduction was easily made under ether. No sutures were used, and the wound was dressed with oiled lint and the arm placed on a pillow. The wound healed slowly. For some time offensive pus was discharged through two or three sinuses. At length, pain in the shoulder, a large slough over the bruised internal condyle, the discharge, and an ugly cough, all giving rise to great anxiety, the patient was moved from the back ward into a front one, on the 62d day. This, Mr. Holden states, made a great improvement in the patient's condition. On the 104th day an abscess about the level of the surgical neck of the humerus was opened under chloroform, and dead bone detected. On the 118th day a free incision down the front of the shoulder was made, and the head and the two tuberosities, together with about an inch of the surgical neck of the humerus, were removed. After this the patient rapidly recovered. Seven months after the accident the sinuses had all healed. The arm was found to be shortened 1½ inches. The muscles of the shoulder were atrophied. He regained slowly the use of his elbow and hand. Mr. Holden gives the recorded results of eleven instances of compound dislocation of the shoulder. Of these, seven were reduced and recovered with fair use of the arm; two were resected and died; and two died before the arrival of the surgeon.

Mr. Howard Marsh contributes *a Case in which Abdominal Section was performed for Intussusception*.—The patient in this case was a child, nine months old. He was weak and feeble after a month's illness, and the intussusception was of "portentous" length. It was determined to perform the operation of abdominal section, on the following grounds: (1) The patient's condition was hopeless if things were left as they were. (2) There seemed no hope that an intussusception, by which the cæcum had been protruded more than five inches from the anus, could be reduced by any means short of an operation. (3) That the child had been sick only twice; that the bowels had acted daily, and that flatus was often passed by the anus; that only two or three drops of blood had been seen on a single occasion, six days before; that there had been little discharge, either mucous or serous, from the intestine; that the volvulus was neither tense nor dusky—all these points, when looked at by the light of former experience, seemed almost conclusive evidence that neither adhesion nor strangulation was present. The hope that the child might be saved by sloughing and discharge of the volvulus could not be entertained: first, because there was no prospect that sloughing would take place, for there was no strangulation to produce it; and secondly, because, even if it did, the loss of so much intestine would certainly be fatal.

The bladder being emptied by the catheter, and the child being under chloroform, an incision about two inches long was made in the median line below the umbilicus. In consequence of the great length of intestine that was involved, the mesentery and mesocolon of which had gone with it into the sheath, the intussusception was held down at the back of the abdomen, and could not, without some slight force, be drawn forwards. It was found that by no justifiable amount or method of traction, could any portion of the volvulus be drawn out.

The expedient successfully used by Mr. Hutchinson in his second case, of acting on the lower end of the bowel, and pushing it backwards towards the mouth of the sheath, was then tried. The part that had projected beyond the anus having been replaced (this had been done before any attempt at reduction was made), the sheath was taken between the finger and thumb immediately below the volvulus and gently squeezed; and this squeezing was constantly repeated, while the finger and thumb were gradually shifted upwards in the long axis of the gut. By this manœuvre, the volvulus was with the greatest ease made to "back out," being lifted in a retrograde direction and pushed higher and higher till the cæcum and its appendix were seen to emerge from the sheath. The wound was now closed with hare-lip pins and superficial sutures. When the operation was finished, the child was very pale and almost pulseless, but being warmly wrapped up, and cautiously fed with milk and brandy, he gradually revived. The bowels acted four times in the course of the next nine hours, and flatus was passed freely. No sickness occurred. Towards evening the patient, rather suddenly, became restless and collapsed, and died ten hours after the operation. At the post-mortem examination, it was found that the intussusception had left scarcely any trace of its having existed. There was nothing indicating gangrene nor any ulceration of the mucous surface. There was only a slight discoloured portion found at the free end of the volvulus.

The case was a typical one of that chronic form of intussusception to which Mr. Hutchinson has called particular attention. The ileum had slipped into the colon as into a loose sheath, by which it was so slightly constricted that its circulation was but little interrupted, and its canal so slightly compressed that both flatus and fæces could still pass through it.

Mr. Marsh goes on to say that one of the chief points of interest in the case relates to the manner in which the invagination was returned. This was the second time that an intussusception which could not be drawn out was reduced with the greatest ease, by pushing it back in the fashion described.

We may add that it is in this manner, namely, by pushing back the invaginated bowel, that injections of air and of water by excess have of late been found perfectly efficient, without resorting to abdominal section. But we perfectly agree with Mr. Marsh when he says:—

"If the diagnosis is complete, if strangulation is recent, say of not more than eighteen hours' duration, or if, in chronic cases, there is room for good hope that inflammation is not present; if other means of reduction have failed, and if there is no other circumstance in the case that makes failure a foregone conclusion, or leaves little less hope of success, the operation should be performed, after the common rule in hernia, at once. Till this becomes the accepted practice in these cases, it will never be known how many lives among them may be saved by abdominal section."

A Case of Fatal Wound of the Ascending Pharyngeal Artery by a Tobacco Pipe is reported by Mr. W. MORRANT BAKER. The curious part of this interesting case is that though there was considerable arterial hemorrhage on the afternoon of the 3d day after the accident, and although the patient was much blanched, it was only on the morning of the 4th day after the accident happened, and then not until after a sudden hemorrhage of eight or ten ounces, that the wound of the tonsil was explored, and a foreign body, being felt, was withdrawn by the aid of forceps, and found to be a piece of a clay tobacco pipe, with jagged end, and about an inch in length. The wound was now plugged with lint charged with perchloride of iron, and the common carotid artery tied at the level of the cricoid cartilage. The patient died two or three hours after removal from the operating table.

Abdominal Section in a Case of Ruptured Bladder is the title of a paper by Mr. Alfred Willett, based upon a case in which he performed the abdominal section nearly thirty hours after the rupture of the bladder had taken place. The patient died twenty-four hours after the operation was performed.

The writer makes a marked distinction between cases where the rupture involves the peritoneal coat of the bladder and those cases in which the bladder is torn in the neighbourhood of the neck, where the viscus is not covered by peritoneum. The greater portion of the paper is taken up in discussing the case of Dr. Walker and that of Dr. Mason, in both of which cases the operation of dividing the neck of the bladder as in lithotomy in order to give free vent to the urine was practised with success.

Mr. Willett doubts the propriety of such an operation when the rent involves the peritoneum covering the upper part of the bladder. The difficulty in most cases of locating the rent in the viscus will prevent the surgeon from declaring that the abdominal section is more applicable than the operation for lithotomy in these cases.

Some Remarks on the Introduction of the whole Hand into the Rectum, is the title of a valuable paper by Mr. W. J. Walsham. The author makes the following remarks. deduced from the examination of four cases on the living body and twelve experiments on dead bodies:—

1. "That the hand, if small, can be introduced into the rectum of both male and female without fear of rupture of the sphincter or incontinence of feces.
2. "That the dilatation of the sphincter should be very gradual, five minutes at least being allowed for its accomplishment.
3. "That no pain or inconvenience is experienced by the patient as an after-result of the operation.
4. "That when once through the sphincter, the windings of the gut should be followed very cautiously by a semi-rotatory movement of the hand, and by alternate semi-flexing and extending the fingers.
5. "That in many cases the hand can be passed into the sigmoid flexure, and possibly, in rare instances, into the descending colon.
6. "That should the hand meet with a feeling of constriction about the junction of the first and second pieces of the rectum, no force on any account should be used to overcome it, as this can only be accomplished by rupturing the peritoneum, which is here reflected from the intestine.
7. "That this method of investigation is of use in detecting a stricture high up the rectum or in the sigmoid flexure of the colon, but that a stricture below he descending colon may exist although the hand may be unable to discover it."

We believe Mr. Walsham's investigations on the point he has chosen for his paper calculated to do a great deal of good in throwing light on some obscure pelvic maladies.

The *Proceedings of the Abernethian Society for the Winter Session of* 1875–76 is the last paper in the volume, and contains a good deal of interesting and practical matter, both surgical and medical. Dr. Godson's paper on "Subinvolution of the Uterus," and Dr. Brunton's paper on "Diuretics" are especially in point. Mr. Mill's paper on "The Administration of Anæsthetics" presents nothing new. The following *tardy* observations are gatifying, however; in discussing the relative merits of chloroform and ether Mr. Mills says: "It appears that the heart may be paralyzed by chloroform, but not by ether. . . . So far as it is possible to judge at present, there seems to be less danger attending the administration of ether than that of chloroform, and it should therefore be used in all suitable cases."

There are eleven surgical papers in this volume, ten of which were written by officers of the surgical staff of the Hospital. These papers take up ninety-three pages of the volume and are worthy of the high reputation of the series.

W. S. F.

ART. XXIV.—*Transactions of the Obstetrical Society of London.* Vol. XVIII. For the year 1876. 8vo. pp. lxii., 355, 20. London: Longmans, Green & Co., 1877.

THE volume under notice contains 311 pages of text; and a catalogue of the Fellows, showing 25 honorary, 7 corresponding, and 689 ordinary; not a very full annual for so large a membership, even when we take into the account, that the average attendance is but one in thirteen of the ordinary fellowship, or 53. These large medical bodies may be valuable as affording handsome pecuniary incomes, but possess little advantage in other respects over small working societies. We may learn a valuable lesson in the organization of societies for medical improvement in our own country, where we might be inclined to regret that the thinness of our population necessarily limits their membership but for the fact that the great mass of work is done by a few men, whether the body be small or large in numbers.

The first paper which we shall notice is a case of *Cyst in the Larynx of an Infant*, reported by Dr. A. W. EDIS. This is a valuable record, as showing one of the causes of death in new-born subjects. Child, a female, 8 pounds, labour ordinary, and of eight hours' duration; breathing moaning in character from the first, and at no time unembarrassed; nursed, but with difficulty; died in thirty-seven and a half hours. A post-mortem revealed the existence of a cyst, the size of a large bean, springing from one side of the larynx, and pressing on the rima glottidis. No other abnormal conditions found. The disease is a very rare one.

Dr. C. H. F. ROUTH, Physician to Samaritan Hosp., Lond., reports a case of *Extra-uterine Fibroid successfully treated by Gastrotomy.* Woman single, æt. 29, came under observation, Feb. 15, 1872, and was operated upon, June 16, 1875. Began to fail in health in 1868; discovered a floating tumour in her abdomen the size of a hen's egg, in 1869; this began to increase rapidly in August of that year, and advice was first sought in October, under Dr. Richards, of Bangor, who found that the growth had reached the size of an adult head. Various forms of medical treatment were resorted to, but with only temporary relief, from 1869 to 1872, at the hands of several physicians.

When placed under care of Dr. Routh, the tumour was of stony hardness, and reached to epigastrium. It seemed to consist of several lobulated masses, one lobe on the left of the median line high up, appearing to project on the surface. This was of pyriform shape and about four inches long, could be readily moved from side to side, and proved ultimately to be the uterus. In Douglas's space the tumour was "*perfectly stony*," and a fissure could be felt dividing the mass.

resembling to the touch a cranial suture. In fact there appeared a close resemblance to a fœtus with an ossified head.

Medical treatment was continued, as required, with at times considerable intervals, until the spring of 1875, when the existence of hydrothorax, ascites, and anasarca of the lower extremities, complicated the case, rendering it necessary that she should be tapped for relief. This was done twice, at an interval of thirty-eight days, with a removal of 16 and 22 pints of serum respectively, and in fifteen days after the second, gastrotomy was performed.

Gastrotomy, June 16, 1875. Incision six inches, and extended to ten; abundance of serum, no adhesions; tumour prolonged downward into pelvis; uterus six inches long; pedicle attached to right of uterus by a wide, thin base. This was five inches wide, and one inch and a half long. It was first clamped, then cut off, and finally cauterized. The tumour weighed 17½ pounds.

In four days the free portion of abdominal wound closed by first intention, the maximum temperature during this time being 103.6°, and minimum 100°; pulse 144, and 120.

On 8th day symptoms unfavourable, axillary temperature 105°, vaginal 107°, pulse 144; complaining of headache and giddiness, and appearing only partially conscious. Placed in an *ice-bath* for three-quarters of an hour, with restoration of consciousness, relief of headache and giddiness, and fall of temperature and pulse, the vaginal temp. being 100°, and pulse 124. Continued to do comparatively well until ninth day; passages too frequent; highest temperature 100.4°; pulse 110. Gradual change for the worse on 11th, 12th, and 13th days; ice-bath again used on 15th day.

Fluctuation felt in Douglas's space on 19th day, and four ounces of fetid sanguineo-purulent fluid drawn out by aspirator. Abscess was then washed out with weak iodine. Three days subsequently, the same condition being renewed, the abscess was evacuated to the same amount, per rectum, and a drainage tube inserted, through which the wash was injected twice daily, drainage being continued several weeks. Patient became much emaciated, but finally recovered her flesh and health, the last notice being dated September 24, seventy days after the operation, when she weighed 112 pounds, a fair condition for a height of 5 ft. 2½; after so narrow an escape for life, her best weight having been 126.

A vast number of observations were made in the course of the treatment of this case, recording the pulse, and axillary and vaginal temperatures, from four to as many as nine times in 24 hours. These tables are apparently more curious than valuable, as the variations of the three points given take place without any reliable proportionate relationship, viz.: vagina 99.8°, pulse 96; vagina 100°, pulse 88; axilla 98°, vagina 98°, pulse 92; axilla 96°, vagina 100°, pulse 86, etc. A high degree of vaginal temperature preceded the formation of abscess, but at the maximum, 107°, it appeared to arise from a general hyperpyrexia possibly due to septic poisoning, as the axillary was 105°, and the pulse 144. By the ice treatment, the vaginal temperature, in twelve hours, fell 7.2°, and pulse, 48 beats.

There are several points worthy of note, as bearing upon the diagnosis of uterine tumours, obtained from this case. 1st. There was no menorrhagia. 2d. There was no uterine souffle. 3d. The sound entered the uterus but half an inch, as its position made it impossible to carry it higher, although the canal was pervious, and the organ elongated to six inches.

The annual address of the President (Dr. Priestley), for the year ending January 5th, 1876 (see *Monthly Abstract of Medical Science*, Feb. 1876, p. 86), was mainly devoted to the question of Puerperal Fever, which had been fully discussed in the Society, and has been reviewed by us in referring to the said discussion.

Mr. JONATHAN HUTCHINSON, F.R.C.S., presents *A Report on Certain Causes of Death in Ewes during and after Parturition, with Notes on the Navel-ill in Lambs.*

This article, with a long discussion upon it, occupies twenty-one pages; but a few points given by the author in deduction will explain the whole subject, viz.:—

> "1. It seems clear that the death of the fœtus before delivery is a far more serious occurrence in sheep than in the human subject, and also that it is far from an unfrequent one. The lamb, after death, appears to become not unfrequently a cause of metritis, and there seems to be but little tendency to its expulsion.
>
> "2. When metritis occurs in the ewe, whether from a retained dead lamb, a retained portion of placenta, or simply as the sequence of parturition, it is apt to run a rapid course. The tissues of the organ soon become infiltrated and sodden, and there is a tendency to gangrene, during which rupture of the walls may take place.
>
> "3. In connection with uterine inflammation, whether after delivery or after death of the fœtus, peritonitis and pyæmia will not unfrequently occur.
>
> "4. There appears but little reason, so far as my experience has gone, to believe that puerperal metritis and peritonitis, or the consequent pyæmia, are other than accidents. In all cases that have come under my observation, I believe that the disease was self-developed. We never once had reason to suspect contagion.
>
> "5. It is conclusively proved that puerperal peritonitis and pyæmia may occur in animals treated in the open air, and yet run a course almost precisely similar to the parallel maladies in the human subject.
>
> "6. We have seen that ewes, whilst giving milk, may be made liable to a sort of idiopathic tetanus; and, further, that the same article of food, 'cotton-seed cake,' shows no tendency to produce it in lambs and undelivered ewes.
>
> "7. Lastly, we have seen that young lambs are liable, quite independently of any known source of contamination, to the occurrence of purulent phlebitis of the umbilical vein with the consequent phenomena of pyæmia."

These observations are valuable additions to knowledge upon the question of uterine pathology, and show the importance of paying more attention to the study of diseases in the lower mammalia, in whom they may be more thoroughly investigated. Their analogies with those in man should be revealed, and made valuable in helping us better to comprehend the maladies of the human female.

The Hodge Pessary.—In discussing a paper read by Dr. JOHN WILLIAMS, on the "Mechanical Action of Pessaries," the following opinions were advanced:—

Dr. Braxton Hicks thought that taken altogether in actual practice, Hodge's pessary was as good a form as we had at present. He believed it had considerable influence in correcting retroflexion. Dr. Playfair regarded Hodge's pessary as a most admirable instrument. Dr. Aveling believed this pessary to be valuable in retroversion, but not in retroflexion, until an intra-uterine stem had been inserted. Dr. Hayes recommended Hodge's pessary in retroflexion, and said that care should be taken to select one that would pass well up into the posterior cul-de-sac behind the fundus. Where this sac was short and narrow, he believed that the Hodge instrument would be of little, if any, benefit. Dr. Graily Hewitt had often seen a case of retroflexion converted into one of anteflexion after the employment of a Hodge pessary. Dr. Barnes observed that if we used a Hodge pessary with the understanding of its action, we should never be disappointed. In cases of flexion, the use of the intra-uterine stem was often found an additional necessity.

Dr. G. C. P. MURRAY recommended the *Flexible Vertebrated Uterine Sound* as a substitute for the ordinary instrument to avoid the danger of perforating the uterine wall. Several Fellows mentioned cases where this accident had occurred.

It is not probable that this will take place where the uterine tissues are sound, but this fact cannot be determined until after the instrument has been used.

Dr. Alfred Wiltshire reports *A Case of Puerperal Septicæmia with Abscesses, Disorganization of the Left Wrist-joint, and Phlegmasia dolens, in which recovery took place.* Mrs. F., 30, primipara; labour ordinary; delivered Dec. 7th, 1874; appeared low and faint afterwards. 3d day, vomited and perspired abundantly; pulse 100; used vaginal injections of Condy's fluid. 4th day, pulse 120; skin hot and dry. Dec. 13th, some hemorrhage, with clots. Dec. 14th, pulse 140; temp. 105°; respiration quick, moist, and sibilant râles, hiccough, aphthæ in the mouth, distension of abdomen, left wrist tender and swollen. Dec. 15th, very drowsy, and had a rigor. Dec. 17th, wrist more swollen; an abscess found on outside of left calf; temperature 105°. State of patient fluctuated for a month, and abscesses were opened from time to time in right leg. Phlegmasia dolens of whole left lower extremity now set in. Spirits of patient good; left leg much swollen, white, and tensely elastic; "the left wrist-joint was utterly disorganized, the bones grating audibly on movement, profuse sweating, extreme prostration. Wrist not opened, all other collections of pus evacuated as they formed.

Patient was at times subject to sudden, alarming, and at the time unaccountable relapses. These were at last found to coincide with the periods when the *dustbin* was cleaned out; this, containing the refuse of the house and a large grocery store, was believed to be the seat of a putrefactive fermentation, and possibly the cause of the disease.

The infant did not suffer in any way. Mother was able to be removed to the seaside in three months, where she ultimately recovered. Cure attributed to careful management, and the use of large doses of quinia.

Sixteen months after delivery, the wrist-joint is reported as having largely recovered its power of motion. Dr. Hammond, who attended at the delivery, had no other similar case, and had not made recently any post-mortem examinations, or visited patients with scarlet fever or erysipelas.

Dr. Braxton Hicks recommended that quinia should be given in 5 to 10 gr. doses every four hours, for three or four days. Other Fellows bore testimony to the value of the remedy, and the use of morphia, hypodermically.

Dr. J. Braxton Hicks, assisted by Dr. J. F. Goodhart, contributes a paper *On the Displacement of the Uterus by the Distension of the Badder, as shown by experiments on the dead body.* Eighteen experiments were tried. The abdomen was opened, and the intestines in the majority of instances drawn out of the pelvis; a catheter was then introduced, and water pumped into the bladder, in some instances until it ruptured.

The following are the deductions reported by the experimenters:—

"1. Bladder distends first towards sacrum, then upwards.

"2. The distension of bladder, as a rule, stretches the uterus along the under surface, rendering it horizontal in position, instead of vertical, or parallel to its floor. Thus the influence of a distended bladder is always towards retroversion.

"3. If the vaginal portion be in a more relaxed condition than natural, then this part is distended into the vagina below and in front of the os uteri; after this the upper part is enlarged. By this movement the cervix is carried backwards first, but afterwards, from full distension the total effect of the action is to carry the uterus wholly backwards in a more or less vertical position.

"4. If, however, the uterus be enlarged, and especially if already seated high in the pelvis, then it is pushed upwards after it has been driven against the sacrum, and is ultimately carried out of the pelvis. The distension of the rectum assists this upward tendency of the uterus.

"5. If the cervical attachments be firm, then there is a tendency for the distension of the bladder to produce retroflexion. If it be already retroflected or retroverted, then this malposition is increased.

"6. If with the uterus already retroverted the vaginal portion of the bladder distended first, then the first effect is to correct the retroversion more or less, after which the uterus is displaced backwards in the horizontal or vertical position."

Similar experiments are reported by Dr. JOHN WILLIAMS in the *Lancet* for 1873, vol. ii. pp. 192, 298.

In discussing the paper of Dr. Hicks, a wide difference of opinion was expressed by the Fellows, the prevailing judgment being, that such experiments upon the opened bodies of dead subjects were far from satisfactory or reliable. Dr. Tilt proposed to inject the bladder in an unopened body, freeze the subject, and then make a vertical section of the pelvis and its contents.

The grounds of objection to the experiments of Dr. Hicks are: that the bladder is much less distensible than in the living subject; that the distended rectum in life antagonizes the bladder; and that there is a mutual support in the pelvic organs during life, tending to keep the uterus in its normal position, when not diseased in its tissues.

A Case of Vesico-vaginal Fistula left fourteen years after Lithotomy, cured by a series of Plastic Operations, is reported by Mr. LAWSON TAIT. Woman 37, vaginal lithotomy performed in March, 1862. Several operations for closure of wound failed. Came under care of Mr. Tait in July, 1874; operation on bladder proper successful on first trial. Four attempts to heal up the urethra and neck of bladder failed. After treating the patient for nine months, to overcome the disposition to the deposit of phosphates, a fifth operation was performed, the bladder being first tapped per vaginam, and a nickelled wire drainage tube inserted. This operation succeeded perfectly, and the stitches and tube were removed in sixteen days: the perforations being valvular, readily healing. The contracted bladder was for a while a source of trouble, but in time it dilated to hold ten ounces. No difficulty in the retention of urine.

Dr. A. L. GALABIN reports the following: "*Two cases of Pregnancy complicated by extensive Malignant Disease of the Cervix Uteri.*"

Case 1. 41 years old; mother of eleven children born alive, and at full term; hemorrhage at intervals during pregnancy. Whole circuit of os found diseased; patient anæmic and cachectic. Labour at term; Barnes's dilators used for six hours under chloroform until one burst; head perforated, then crushed with cephalotribe, but not completely, until after a delay of three hours; hand then could be introduced, blades properly applied to base of skull, and delivery completed. On thirty-fourth day, profuse hemorrhage; on sixtieth, returned home to Scotland.

Case 2, æt. 31, stout and florid; nine children and one miscarriage, last confinement three months previously, since which there had been constant metrorrhagia. Examination revealed epitheliomatous growth from cervix. Rapid increase of disease; cervix removed by galvano-cautery écraseur five months after last delivery. Potassa fusa applied, twelve days later, and afterward liq. fer. perchlor. fort. Discharged on 19th day.

Three months later discovered to have been pregnant at time of operation. No hemorrhage until eight months after operation, when labour slowly set in. Waters broke in two days. Two laminaria tents introduced on third day, and removed on fourth; antiseptic injections used, as discharges were very offensive. After the use of three tents, os size of finger, and dilating bag employed. At end of seven and a half hours, os size of crown piece. Five hours later, bi-polar version; and delivery with much difficulty, especially of the head. Child saved, after artificial respiration for half an hour. Hemorrhage from cervix after delivery, checked by swabbing with tinct. iodine. Opium and quinia treatment. Hemorrhage from time to time; potassa fusa, and fer. perchlor. repeated, as after excision, on 27th day after delivery. Discharged in five weeks; no hemorrhage; had nursed throughout. Disease rapidly advanced from this time.

When four months pregnant, this patient suffered with varicose veins of the legs, and these enlarged, until at the end of the eighth month some became inflamed and filled with clots in the right thigh and calf. This obliterative phlebitis is regarded by Trousseau as an important diagnostic sign of internal cancer.

These cases brought up the question as to the propriety of preferring the Cæsarean operation under the existing conditions named, and various opinions were expressed pro and con. We are inclined to favour that of Dr. Aveling, who said that in most instances where the disease involved the whole cervix, the removal of the fœtus by abdominal incision would not only be justifiable, but necessary. Dr. Meadows thought that, as a rule, the Cæsarean operation should be preferred.

A Case of Extra-uterine Gestation; Removal of Living Fœtus by Abdominal Section; Recovery of both Mother and Child, is reported by Mr. Jessop.

Woman 26, gave birth to a child in March, 1869. Became again pregnant in January, 1875. On March 3d felt that she had strained herself internally by lifting. On 10th seized with a violent pain in right side of abdomen, and fainted. Symptoms of inflammation supervened, and she kept her bed more or less for two months. First motion felt on May 14th, and from this time experienced abdominal pains, frequent sickness, constipation, and want of appetite. Extra-uterine pregnancy diagnosed by Mr. Clayton and Mr. Samuel Hey.

Came under care of Mr. Jessop, Aug. 13th, 1875. Was emaciated and feverish, sick at stomach, with a dry tongue, great thirst, and a rapid, feeble pulse. Nates of fœtus could be distinctly felt through abdominal walls, as also spinal column, scapulæ, and feet. Sound entered uterus $2\frac{1}{4}$ inches.

Operation on 14th August. Fœtus free in abdominal cavity; placenta covered inlet of pelvis; cord brought out of wound, cut to two inches from abdomen, and clamped; placenta not disturbed; wound closed by six silver sutures.

Child a female, and believed to be about $7\frac{1}{2}$ months; respiration embarrassed for an hour and a half, then normal; thought probably due to transmitted anæsthesia.

Five days after operation discharge bloody, and continued for some time. Aug. 22d, became offensive from decay of placenta. Aug. 29th, vomiting ceased. Sept. 4th, funis cast off; abdominal wound healed, except a round hole at its lower extremity; discharge now profuse for two weeks. Sept. 14th, pain and œdema in right leg and foot. 16th, discharge purulent and diminished decidedly. Sat up on 27th. Oct. 29th, wound quite healed. Child strong and healthy until eleven months old, when it died of croup and pneumonia after a week's sickness.

This is said to be the only case where gastrotomy has been performed in Great Britain for the removal of an extra-uterine fœtus, that has resulted in saving both mother and child. It has been performed with success in this country; and with the improvements in diagnosis and after-treatment, we see no reason why it should not be more frequently performed, with a view to save life. The woman under Mr. Jessop owed her life to his not removing the placenta; but there is a question whether it would not be better to ligate the cord close to the placenta, cut it off, and trust to this body being removed by a shrivelling process, without decomposition. If this will answer, then the time of recovery would be very much shortened, and the dangers of septic poisoning materially diminished.

Dr. A. L. Galabin reported a third case of malignant disease of the cervix uteri in a pregnant woman, the subject being 36, and the mother of six children. Owing to the condition of the cervix it was decided to operate by the Cæsarean section, which was done on Nov. 24th, 1876, when about eight months pregnant; the fœtus being considered, as it proved to be, dead.

Uterus did not contract firmly; copious hemorrhage from placental site; faradic current of no avail; ice, and hypodermic injection of ergot failed also; sponges dipped in solution of perchloride of iron, and applied under pressure, finally succeeded. Uterine wound closed with interrupted sutures of fishing-gut. Patient died in 52 hours. Dr. G. was of the opinion that septicæmia prevailed prior to the operation, and was probably the cause of the death of the fœtus. She had severe rigors on Nov. 22d, accompanied by vomiting; pulse rose to 140, and temperature to 102.6°; fœtal movements ceased in about twelve hours.

Cæsarean operations for cancer of the cervix have been more successful in Great Britain than those for deformities of the pelvis; which we attribute to the fact that they are performed early in the labour, and not as a last resort. R. P. H.

ART. XXV.—*The West Riding Lunatic Asylum Medical Reports.* Edited by J. CRICHTON BROWNE, M.D., F.R.S.E., and HERBERT C. MAJOR, M.D. Vol. VI. 8vo. pp. 309. London: Smith, Elder & Co., 1876.

THE present volume of this excellent series opens with a paper by Dr. MAJOR upon the *Histology of the Island of Reil.* The study here begun is designed to extend to varying conditions of the part in man, and also to its structure in the ape. In assigning causes for attaching peculiar interest to this portion of the brain, the writer falls into some singularly contradictory expressions. First stating that it is the part that appears earliest in the brain-development of the human fœtus and of the "animal series," he adds: "It appears to be peculiar to man and the higher apes; with the exception of the makis, no indication of its presence being observed in other animals." And again in the next sentence speaks of it as peculiarly difficult of access to the experimenter "in those of the lower animals in which it occurs." Another reason for attaching great importance to the structure of this region is found in the connection which it seems to possess with the faculty of speech.

At present, Dr. Major limits his inquiry to the healthy human adult, asking whether the minute anatomy of the insular cortex differs from that of cortical matter of other convolutions; whether its gyri differ among themselves; whether the right insula differs from the left, and lastly whether the white matter has the same connections with the cortex as in other convolutions.

In answer to the first question, his investigations lead him to believe that the six layers of cortical substance agree with those found at the vertex, in order and arrangement; but that the cells in the third layer are in the insula generally smaller. In regard to the other points, no difference of structure was detected. The one point of diversity, Dr. Major reminds us, assumes peculiar importance, when we remember that it is in this very third layer that degenerative changes most appear.

Two excellent plates exhibit the normal and the pathological anatomy of the region, as viewed in sections under the microscope.

Mr. CROCHLEY CLAPHAM presents the statistics of the *weight of* twelve hundred *brains of insane persons.* The entire organ was first weighed, and then that portion made up of cerebellum, pons, and medulla. The facts are presented under different aspects, viz., as to sex, age, disease (form of insanity), and religious persuasion. The separation by sex, too, is carried throughout the other classes. The male brains averaged four or five ounces heavier than the female. The proportionate weight of the inferior portion was slightly larger in the male brain. In marked cases of brain wasting, the inferior portion suffered less than the cerebrum. This collection of observations presents many points of interest, and seems to us a most valuable contribution to knowledge.

Mr. ROBERT LAWSON describes the very marked and beneficial action of *Hyoscyamine in some forms* or manifestations *of insanity*. In aggressive or destructive excitement, mania with delusions of suspicion, and in the status epilepticus, its action is often wonderfully tranquillizing. The propensity, either wilful or impulsive, to destroy clothes and bedding is said to be controllable, sometimes by a single dose of a grain or three-quarters, and sometimes by one-eighth every three hours. Appetite and nutrition are not interfered with, save for a very few hours sometimes after a large dose.

Dr. JOHN MERSON takes 1054 cases of female patients admitted to the asylum during four years, as a text for a paper upon the *Relation of the Climacteric Period to Insanity*. That a larger proportion of women become insane at this time than during any other equal number of years, is indicated by the records here quoted. How far the cessation of the menses is causative is, of course, doubtful. As the writer justly remarks, "it is not usually to any single specific cause," but rather to combinations of causes, that the morbid manifestations are to be ascribed. The writer has not found cases connected with the cessation of menstruation to be less curable than others at the same age.

Dr. SUTHERLAND, treating of *Cases on the Borderland of Insanity*, expresses his disbelief in moral insanity. Some of his cases of "moral depravity" are excellent examples of moral imbecility. Our readers would doubtless be pleased to know how to distinguish the boundary line between insanity and its borderland. It has heretofore been found a little difficult to fix it with absolute precision. In his exact words the writer places on *one* side of the boundary line "those who are suffering from distinct mental symptoms which are yet not so marked as to justify a medical man in signing a certificate of insanity;" and on the *other* side, "those whose mental symptoms are so decided as to justify a practitioner in signing such a certificate." This sage judgment recalls the favourite criterion of Mr. Podsnap in "Our Mutual Friend"—the "absence of everything calculated to call a blush into the cheek of a young person." We need not spend time, after that, in combating for the reality of moral insanity.

In some *Clinical Notes*, by Assistants LAWSON and LEWIS, we find recorded a curious discovery of very great practical value in hospitals containing the chronic insane. In a patient of shockingly filthy habits, tannin suppositories were used for surgical purposes. A vast improvement in cleanliness immediately followed. This caused the medical officers to examine during sleep the ani of some of the dirtiest patients. The sphincters were found to be continuously relaxed. Eight cases were at once selected for experiment by the nightly use of the suppositories. The result was a very great diminution in the frequency of defilement, both day and night. Treatment being omitted after one month's use, the improvement was still manifest throughout the succeeding four weeks.

In the same article attention is directed to voracity of appetite as a possible diagnostic symptom of cerebral tumour.

Two cases of recovery from insanity are noted, in which the peculiar blood-tumour of the ear had occurred, followed by the customary shrivelled appearance. Heretofore we had never heard of a recovery where this symptom had existed.

Hydrate of chloral has come to be regarded, in West Riding Asylum, as almost a specific in checking epileptiform seizures. In one fatal case, however, in which it failed to control the convulsions, the enormous number of 1849 fits was observed in fifteen days. A bony nodule was found in the pia mater after death. Doses of forty to sixty grains of chloral are given without ill effects, and are required to produce the desired results.

The state of the pupil in general paralysis and epilepsy, especially as to its responsiveness to the irritation of distant nerves, is indicated as often affording important information as to the condition of the spinal cord. Inequality of the pupils is believed to give almost positive knowledge as to the seat of the cerebral lesion, this being on the same side with the dilated pupil.

Mr. CLAPHAM, with the co-operation of Mr. HENRY CLARKE, surgeon to a prison, has obtained measurements and *outlines of the heads of* 1300 *insane patients and* 500 *criminals.* The results are not quite in accordance with popular preconceptions. The average size was considerably greater in the insane than in the criminals; and also greater than the measurements given by Dr. Carpenter for the European cranium. In this last comparison the writer allowed one-half inch for thickness of integument, supposing Carpenter to have measured the naked skulls. Female heads were found much smaller than the male, and smaller even than those of male idiots; a fact, it is gallantly added, "alone sufficient to show the non-essential character of size."

In both criminals and lunatics the heads of persons over forty years old were larger than those of younger subjects.

The measurements were taken in several different directions, and the greatest horizontal circumference was taken for each head in its exact outline by the *conformateur*. Any want of symmetry would be certainly detected by this instrument. Somewhat to the observer's surprise, irregularity was scarcely more common or marked in the insane than in people at large. One peculiarity of form, however, is believed to be found only in the insane. This consists in the greatest transverse diameter being in the anterior third of the skull. It gives the appearance of a fine, well-developed forehead. Less than eight per cent. of the insane subjects exhibited this location of the greatest diameter. But of general paralytics over 19, and of epileptics 12, in each hundred, presented the peculiarity.

"Left-handedness" existed in more than four-fifths of the insane, and was most marked in the men. Among those criminals who were left-handed, about one-half showed a greater cranial development on the right side.

Dr. CRICHTON BROWNE, formerly at the head of the Asylum, contributes, in a paper on the *Pathology of General Paralysis*, a very elaborate and ingenious argument to show that adhesive inflammatory action, between the cortical substance and the pia mater at the summits of the convolutions, is the pathognomonic visible lesion of general paralysis. Attention is directed, however, to the ease with which the delicate adhesions in question may be overlooked without especial care. Their limitation to the free surface of the convolutions is explained upon mechanical principles by the pressure and friction of the bony covering. The excessive functional irritation and hyperæmia of the gray matter is, however, not thus limited. The degenerative changes in the nerve-cells, and the thickening and œdema of the pia mater, are equally observable in the sulci and on the surface. While attributing the phenomena of general paralysis to an insidious inflammatory process, the writer is careful to add that he believes the real source of the disease to be in those mysterious organisms, the brain-cells.

The reasoning by which Dr. Browne accounts for the non-appearance of his distinctive adhesions, in about one-fifth of the cases in which death has been attributed to general paralysis, seems to us sound and moderate. While typical cases are unmistakable, others occur which are by no means so clearly marked. Adhesions once formed may have been dissolved by free effusion between the adherent surfaces. It is conceiveable, too, that cerebral atrophy and increase of meningeal fluids, preceding the specific inflammatory action, may prevent the inflamed surfaces from adhering.

The adhesive inflammation attendant on general paralysis differs from that of chronic meningitis in the entire absence of pus, and in its limited extent. The first originates in the cerebral substance with its fine and limited vessels, while the latter has for its origin the large, numerous, and distensible vessels of the membranes.

The theory of a moderate, insidious, and protracted inflammatory process is supported by the elevation of bodily heat, increased excretion of urea, and often by pain in the head. Appearances after death occurring early in the disease show many evidences of inflammation of a mild type; while later post-mortems indicate the results of successive hyperæmias and effusions.

Assuming that the adhesions as found in the brain of a victim of general paralysis point to functional and structural lesions of the subjacent cortex, it is not unreasonable to hope for the discovery of instructive relations between the mental and physical symptoms and the particular localities affected by the disease.

A peculiar treatment of the brain recently adopted at the Asylum greatly facilitates the detection of adhesions. Steeping in a dilute nitric acid completely dissolves the non-adherent membrane, and causes adherent patches to become very plainly visible. A series of colored lithographs exhibits the aspect of six brains treated after this method.

The posterior fourth of the brain is never affected with the adhesions or other lesions peculiar to paresis. The island of Reil is also nearly or perhaps quite free from membranous inflammation. The frontal lobes are most extensively affected. The parietal and temporo-sphenoidal lobes are variously and irregularly involved. That portion of the brain which rests upon the tentorium does not seem liable to be affected. The two hemispheres are implicated with some degree of symmetry, though with a little preponderance of disease on the right.

Dr. Browne next points out, in a general way, the relation between lesions and symptoms in the light of recent discoveries as to the localization of the faculties. Altogether this paper is one of very great interest and importance.

Dr. Milner Fothergill, in *Notes on the Therapeutics of some Affections of the Nervous System*, presents some suggestions as to the pathology and treatment of the asthenic and anæmic conditions so prevalent in these times among women. The frequency of a connection between these conditions and the existence of excessive menstrual or other discharges, and the difficulty of obtaining information of the facts when patients are in crowded hospital wards, are points here well made.

A suggestion as to treatment of excessive discharges by astringents is worthy of remembrance. The undesired action of these drugs upon the bowels can be prevented, and their desired effects increased, by the addition to each dose of one or one-half drachm of sulphate of magnesia. This agent, it is stated, is astringent everywhere except in the bowels. Tea is to be looked upon with suspicion, and often to be wholly forbidden. Where quinia causes headache the bromide of quinia may be used.

Dr. J. Hughlings Jackson has an essay *on Epilepsies and on the After-effects of Epileptic Discharges*. The condition immediately following the convulsion is the one here meant. The phenomena of an epileptic seizure depend on the locality and on the severity of the "discharging lesion." Over-action of a portion of cerebral matter is followed by a proportionate prostration or paralysis of function in the same part. Further than this simple statement we cannot attempt to analyze Dr. Jackson's paper.

Two or three other papers, not requiring particular notice, complete this extremely valuable and creditable contribution to cerebral physiology, pathology, and therapeutics. B. L. R.

ART. XXVI.—*Report of the Fifth International Ophthalmological Congress.* Held in New York, September, 1876. 8vo. pp. 255. New York: D. Appleton & Co., 1877.

THE International Ophthalmological Congress, which meets every fourth year, held its fifth session in New York in September, 1876. There was a large attendance of American ophthalmic surgeons, and the following foreign countries were represented: England, Scotland, Canada, Holland, Belgium, Norway, and Denmark. In the following pages we give a brief *résumé* of the proceedings:—

Dr. H. D. NOYES, of New York, in a communication *On the Use of a Naso-Buccal Flap for Blepharoplasty*, reports two cases in which the upper eyelid had been restored by a flap taken from the side of the nose and the cheek. This operation is recommended by the author only in exceptional cases, in which extensive destruction of tissue renders the forehead, temple, and outer part of the cheek unavailable.

The next paper, by Dr. GOWERS, of London, is entitled *Note on Chronic Optic Neuritis;* its object is "briefly to call attention to a form of optic neuritis, which possesses such definite characters and associations as to seem worthy of special distinction. Its chief feature is extreme chronicity. The appearance is that of a moderate neuritis, which remains absolutely the same week after week, and even month after month." Dr. G. has seen three examples of such cases at the Hospital for Paralysis and Epilepsy; the sight was not affected in any of them, and all terminated favourably. Two of the patients were epileptics, and in the third the chief symptoms were headache and occasional attacks of vomiting.

Dr. G. HEYL, of Philadelphia, reports three cases of *Coloboma Lentis*, and refers to other recorded cases. From a review of all, he concludes that

> "coloboma of the lens is a condition which presents at the place of defect, an edge, not rounded as in the normal condition, but either straight in the horizontal direction or incurved; that the amount of deficiency varies from a slight indentation to about one-quarter of the lens substance, the centre of the lens, its poles and the lens substance in the immediate vicinity being uninvolved; that the lens sometimes, in addition to the defect, is imperfectly developed in all is meridians; that the deficiency is always in the inferior half; and, finally, that coloboma of the other ocular structures frequently coexists, but frequently no trace of it can be found."

The author attributes this defect to the fact that the development of the peripheral portion of the lens takes place at a decidedly later period than that of the central portion. and may therefore be arrested after the latter is complete.

Dr. NOYES, of New York, describes an *Additional Means for relieving the Pressure of the Eyelids in Diseases of the Cornea.* It is intended for extreme cases in which the palpebral slit is excessively shortened, and the conjunctiva very much shrunken, and consists of a free canthoplasty with the introduction of a flap of skin from the temple.

The next paper is *On Sympathetic Neuro-retinitis*, by Dr. ADOLPH ALT, of New York, who reports several cases, and refers to others that have been recorded, in which neuro-retinitis seemed to have been transmitted directly from a diseased eye to its healthy fellow. In the majority of these cases the original affection was non-traumatic.

Dr. H. KNAPP, of New York, contributes a paper on *Orbital Tumours*, in which he discusses the more important types of these affections, illustrating the subject by cases. He treats of: I. Orbital Exostosis; II. Retention Tumours of Neighbouring Cavities; III. Sarcoma and Chondroma of the Orbital Wall, and IV. Growths in the Cavities in the Neighbourhood of the Eye.

The three cases reported of the first kind of tumours belonged to the ivory variety of exostosis, which he considers more frequent than any other form in this locality, though orbital exostosis is an extremely rare disease.

"If these tumours are more or less pedunculated, they should be removed, which, it seems to me, can be done without insuperable obstacles." The connection of the base to orbital wall is less firm than the substance of the growth, a condition favourable to removal. Dr. K. used the chisel and mallet in his operations, but mentions, with approval, the suggestion of Dr. H. B. Sands to adopt the drill instrument used by dentists. Dr. Mathewson, of Brooklyn, mentioned that he had used the dental lathe and drill, with great success, in the removal of a bony growth from the external auditory meatus.

Under the second head, a case of retention tumour in the nasal cavity, intruding into the orbit and displacing the eyeball, is reported. The bony shell was broken down, and the cavity syringed with astringent washes until the discharge ceased.

Sarcoma and chondroma of the orbital wall are, unfortunately, more frequent, and their treatment discouraging.

A case is reported in which a part of the bony wall of the orbit was removed with the tumour "without unfavourable consequences." The patient died a few months afterwards with cerebral symptoms.

Growths occupying the cavities and intruding upon the orbit may be fibrous, myxomatous, polypoid, sarcomatous, cartilaginous, osseous, adenoid, or carcinomatous. Their most frequent seat is the maxillary antrum.

The next article is the report of *A Case of Choked Disk under observation three years and a half, without change in appearance or progressive impairment of Vision*, by Dr. MATHEWSON, of Brooklyn, N. Y. The right eye was cataractous. In the left there was typical "choked disk;" the vision was one-half on first examination, but improved materially. The patient was subject to violent headaches, dizziness, etc.; he was among the victims of the Brooklyn theatre disaster, and, on post-mortem examination, a pedunculated cystic tumour, about the size and shape of the human eye, was found in the left middle cranial fossa to the outer side of the cavernous sinus.

Prof. A. NAGEL, of Tübingen, made a short communication urging the *Introduction of the Metre Measure for the determination of Lenses.* This subject was first brought before the Congress at its meeting in Paris in 1867, when Prof. N. suggested the adoption of a lens of one metre focal length as the unit. The proposition was further discussed and approved at the next meeting of the Congress in London in 1872, and the plan has been very generally adopted in Europe.

In a paper on *The Detachment of Posterior Synechiæ*, Dr. B. JOY JEFFRIES, of Boston, advocates Passavant's operation, which consists in passing a pair of delicate forceps through a small wound in the cornea, and drawing away the attached point of the iris from the anterior capsule of the lens. Dr. J. insists upon the importance of properly constructed forceps, which should have no teeth, but be merely roughened.

The next article is by Dr. NOYES, of New York, on *The Optical Error of Conical Cornea, and Report of two cases treated by Operation.* One case was operated on by the trephine, and in the other the conical apex was excised by elliptical incisions, and the edges of the wound brought together by delicate sutures, an iridectomy was subsequently made in each. There was no improvement in vision by the operation in either case, but satisfactory vision was obtained in one, in the eye not operated upon, by a + cylinder glass. The latter experience confirms the observation of Dr. Thomson, of Philadelphia, that, contrary to the prevailing belief, hypermetropia may exist in one meridian of a conical cornea.

A communication, by Dr. Ed. G. Loring, of New York, on *The Halo round the Macula Lutea*, is principally in answer to recent criticisms on his former paper (*Proceedings of Am. Ophthal. Soc.*, 1871) by Dr. Brecht. Dr. L.'s theory is that the halo is an optical phenomenon dependent on a depression of the surface of the retina at the macula, "the product of reflection and refraction from the combination of curved surfaces which enter into the construction of this portion of the retina."

In a paper on *Hypermetropic Squint and Insufficiency of the Internal Recti*, Dr. Edmund Hansen, of Copenhagen, gives quite a full review of the different opinions held by various authors, and takes strong ground against any real weakness or passive shortening, or other anatomical change in the muscles in either of these affections, maintaining that they are entirely anomalies of innervation.

Dr. John Green, of St. Louis, describes *An Operation for Cicatricial Entropium and Trichiasis of the Upper Eyelid following Trachoma, based upon Von Ammon's Tarsotomia Horizontalis.* Von Ammon's operation consists in thrusting a cataract knife through the eyelid, from within outward, by the side of the canaliculus, and at a distance of three lines from the margin of the lid, continuing the incision to within a line of the outer canthus and then incising a piece of skin from its edge, and closing the cutaneous wound by sutures. Dr. Green, having been annoyed in some cases by a tendency of the marginal strip to slough, has modified the operation by cutting through the conjunctiva and tarsus only, and excising a narrow strip of skin, leaving the muscular layer of the lid intact.

Dr. P. D. Keyser, of Philadelphia, reports a case of *Bony Formation in the place of the Lens.* It was taken from an eye that had been destroyed many years before by traumatic inflammation. Microscopic examination showed Haversian canals and lacunae. The vitreous was clear, and there was no other bony formation in the eye.

In a *Note on Trachoma as influenced by Race*, Dr. Swan M. Burnett, of Washington, D. C., calls attention to the rarity of the occurrence of this affection, amounting almost to exemption, among the negroes of the Southern States.

Dr. D. B. St. John Roosa, of New York, contributes a short paper on *The Relations of Blepharitis Ciliaris to Ametropia.* Dr. R.'s experience teaches him that, in a large proportion of cases, blepharitis is excited or kept up by the accommodative strain resulting from some error of refraction, most frequently hypermetropia.

In a paper entitled *Analysis of* 1079 *Recorded Cases of Ametropia and muscular Weakness, with deductions respecting Asthenopia*, Dr. H. D. Noyes, of New York, discusses at length the various well-known forms of accommodative and muscular asthenopia.

The next paper is *A Preliminary Analysis of two hundred and sixty cases of Asthenopia*, by Dr. C. R. Agnew, of New York. A tabulated statement including all the points of interest is given, as a contribution to the clinical history of asthenopia.

Dr. E. Dyer, of Pittsburg, gives the favourable results of more extended experience in *The Treatment of Asthenopia by means of Regular, Systematic Exercise*, which he recommended in 1865. He has found it very useful in cases in which asthenopia exists without errors of refraction or in which it persists after ametropia has been properly corrected. This plan of treatment, which he calls "gymnastic exercise," consists in directing the patient to commence by reading a few minutes three times a day, and to regularly increase each period daily, according to circumstances.

Dr. O. F. Wadsworth, of Boston, reports a *Case of Ectropion cured by Transplantation of a large piece of skin from the Forearm*, an operation recently practised by Mr. Wolfe, of Glasgow.

Dr. F. Buller, of Montreal, suggests *A Convenient Method of applying Warmth to the Eye*, by means of passing a stream of warm water through a coil of rubber tubing.

In a paper entitled *Remarks on the Ciliary Muscle*, Dr. E. G. Loring, of New York, discusses the views of Iwanoff and others, whose investigations show that the circular fibres of this muscle are hypertrophied in hypermetropic eyes, while in myopic eyes the circular fibres are atrophied and the longitudinal hypertrophied. Dr. L. suggests as a factor in the production of the increase of length of the ciliary muscle in connection with myopia, the mechanical effect of distension of the membranes of the myopic eye.

Dr. Chas. J. Kipp, of Newark, N. J., reports a *Case of Subconjunctival Cysticercus*. The patient was a German who had been but a few years in this country, and who had a penchant for "raw or nearly raw meat."

Dr. Eugene Dupuy, of New York, contributes a *Note on Inherited Effects of Lesions of the Sympathetic Nerve and Corpora Restiformia on the Eye.* He details the results of experiments performed on guinea-pigs by Dr. Brown-Séquard and himself. The sympathetic nerve was divided in the necks of a pair of these animals, and the usual effects followed, *i. e.*, "semi-closing of the eyelids, hypersecretion of tears, contraction of the pupil, elevation of temperature on the side of the face operated on, and drooping of the ear." All the effects, but elevation of temperature, remained permanent, and, a few months afterwards, this pair of animals gave birth to a number of young which all presented these peculiarities in so marked a degree that "one would have said that they also had been operated on." Dr. Dupuy has followed the reproduction of these phenomena through five generations. In the same way, exophthalmus caused by injury to the restiform body was transmitted to four generations.

Dr. Argyll Robertson, of Edinburgh, gives the *Report of the Case of a Patient in whom a Filamentous Body was present in the anterior chamber of the Eye.* This curious body, which had been in the eye for twenty years, had not affected the vision.

Dr. Thos. Hay, of Philadelphia, reports a case of *Recurring Sarcomatous Tumour of the Orbit in a Child, extirpated for the third time, and ultimately causing the death of the patient.*

Drs. Loring and Knapp, of New York, describe *metrical ophthalmoscopes.*

G. C. H.

Art. XXVII.—*Report of the First Congress of the International Otological Society, New York, September*, 1876. 8vo. pp. iv., 159.

This Society was organized at New York in September last, at the invitation of the American Otological Society, which, aside from a short business meeting before the International Society was called to order, did not convene last summer. Of the forty-six members who formed the International Society, nine were from abroad; of the sixteen papers presented at the very hurried session, one only was presented by a foreigner, the rest were offered by members of the

American Otological Society, being substantially those which would have come before the latter Society had it assembled as usual.

By a perusal of the first paper it may be learned that the fungus *Aspergillus* can grow most persistently *in the tympanic cavity*, and that mere syringing with water is not sufficient to destroy the parasite when seated in this position. In such instances some parasiticide is necessary; it may consist most advantageously in alcohol.

The second paper, by Dr. KNAPP, on "*Primary Periostitis of the Mastoid Process*," is a highly instructive one, since it sets forth the diagnosis and treatment of a most painful disease. The chief diagnostic point between the primary form of mastoid periostitis and that form of mastoid inflammation resulting from previous aural disease, is the entire freedom of the ears from all morbid symptoms in the former. The treatment consists in a prompt and deep cut through the dense tissues of the mastoid to the bone.

In the fourth paper, Dr. MATHEWSON shows how the *meatus auditorius externus, when occluded by exostosis*, may be drilled out by using the dental lathe as the motive power.

Dr. A. H. BUCK, in the sixth paper, suggests the use of arbitrary *test-sentences for determining the hearing power*. This, of course, would prevent all guessing on the part of the patient.

The same writer shows, in the *seventh* paper, the nature and course of an *acute inflammation in Shrapnell's membrane*, or the membrana flaccida of the drum-head. This paper calls attention to a most important aural disease, inasmuch as acute inflammation of this part of the membrana tympani is very painful, and not easily recognized, yet undescribed in works on otology.

The diagnosis may be established by the following symptoms: "Well-marked redness of Shrapnell's membrane, especially posteriorly. The absence of any evidence of active inflammation of the middle ear proper. The severity of the pain in the ear. The slight degree of impairment of hearing."

Dr. DAVID HUNT gives, in the eighth paper, "a sketch of the early *development of the ear*, with a new account of the development of the meatus auditorius externus, membrana tympani, and middle ear." His conclusions are: "The Eustachian tube is an involution of the pharyngeal mucous membrane; the meatus is an involution of the integument; the drum is formed by the Eustachian tube overlapping the extremity of the meatus."

Dr. LÖWENBERG, of Paris, presents in the tenth paper a very interesting and practical delineation of "*Gaseous interchange in the tympanic cavity, with physiological considerations and therapeutic applications.*" He starts out with the theory that a gaseous interchange between air and blood goes on in the normal tympanum as it does in the lung. This interchange is a rapid process, and when the Eustachian tube is closed by disease, the oxygen of the air in the tympanum undergoing rapid absorption, a quasi vacuum is formed in that cavity. If air is forced into the tympanum at such a time, the vacuum is momentarily overcome, but the oxygen being soon absorbed, the equilibrium of the drum-head and the ossicles is soon destroyed; the latter are forced inward, and the function of hearing is again interrupted.

As the part which air plays in the tympanum is not, strictly speaking, oxygenating, but simply distending, so as to hold the drum-head and ossicles in proper isolation for vibration, therefore Dr. Löwenberg proposes, in cases of obstruction of the Eustachian tube, to overcome the vacuum, and consequent sinking inward of the drum-head, by the inflation into the tympanic cavity of a "gaseous mixture almost neutral, as it were, and little subject to diminution by quasi respiration," because its composition just equals that of the final results of gaseous intercharge—that is to say, it is composed of azote, very little O, if any, and a large quantity of CO_2, the whole warmed to a degree approaching that of the body, and saturated with vapour of water corresponding to the temperature. This composition is furnished most completely by the *lungs*, and therefore Dr. Löwenberg employs expired air for inflation into the ear. A similar use has been made of hydrogen gas, but as this has to be used in a fresh state, and may explode if permitted to come in contact with flame and air, it, of course, is superseded by expired air; though hydrogen, being refractory against respiratory change, might meet the indications in the cases of Eustachian closure already named. In the employment of expired air each patient is made to breathe into a bag of thin India-rubber, or a bladder provided with a cock; the expired air thus obtained is then inflated into the tympanum either by Politzer's method or with a catheter.

This paper is followed by a highly important one by Dr. C. J. Blake, on "*Application of Paper Dressings in Treatment of Perforations of the Membrana Tympani.*" In those cases in which a disease in the middle ear has subsided, leaving a perforation of the membrana tympani with cicatrized edges, the closure of which would improve the hearing, it is necessary to produce such a degree of irritation as shall stimulate a new growth, in order to favour the desired result. Whatever means may be employed to stimulate such a new growth, Dr. Blake holds that the reparative process, once started, should be allowed to proceed with as little interference as possible. In order to protect the new growth of membrane from disturbances, Dr. Blake has ingeniously placed a disk of common writing paper, a little larger than the perforations, over the latter. The sizing of this paper makes it sufficiently tenacious of its hold when once placed on the drum-head. This disk will remain until the perforation is healed, or until some inflammatory process which may occur has washed it away. In the latter instance, when the discharge ceases, the paper disk may be replaced.

Dr. Blake limits the applicability of these dressings to those cases "in which the perforation is a small one, the inflammatory process in the middle ear having subsided, and discharge having ceased, and the outer surface of the membrana tympani having returned to its normal condition; or in cases of rupture from a mechanical injury, where the paper may serve to keep the edges of the wound in apposition."

In a short paper, Dr. O. D. Pomeroy records a very interesting case of a babe two months old, in whom an *abscess over the mastoid region* extended to the squama, and involved the brain, without harming the auditory apparatus.

In the paper on "*Syphilis of the Cochlea (Cochlitis)*," Dr. Roosa very clearly details a list of symptoms which "may be somewhat relied on in making a diagnosis of syphilis of the cochlea and of the other parts of the labyrinth." Chief aid in diagnosis is to be gained by recognizing the suddenness of the affection, the better hearing of the tuning-fork in the better ear, the want of symptoms of disease in the middle ear, and the early loss of power to appreciate the highest notes in the musical scale. The power to hear low notes is the last to be impaired, and the first to be recovered.

Furthermore, the diagnosis of syphilis of the cochlea is aided by the presence of other symptoms of syphilis, as eruption, mucous patches, etc. The therapeutic test, too, is not to be disregarded, in Dr. Roosa's opinion. Many patients with hearing apparently suddenly impaired by syphilis, begin to hear better when placed on anti-syphilitic remedies, and at last recover their hearing under such treatment. In the latter part of this valuable paper, Dr. Roosa suggests that more attention should be paid to "hyperæmic ears," and that to do this patients should be removed from noise to quietude.

The last paper is by Dr. J. Orne Green, on "*Hyperostosis of the Mastoid.*" It is to be regretted that space forbids an extensive review here of this article, which adds much to the diagnosis and treatment of mastoid disease. Not only every aurist, but every general surgeon, will be the better qualified for professional labour when the subject of mastoid disease in general, but hyperostosis of the mastoid in particular, shall have been fully mastered and clearly explained, towards which desirable end Dr. Green's paper greatly tends to lead all those who read it.

A Report on the Progress of Otology for 1875–1876, based on seventy recent papers and *brochures* upon aural topics, and compiled by Drs. Burnett and Blake, is connected with these Proceedings. The report is of a kind similar to that presented each year before the American Otological Society, and serves as a general guide to any one interested in the literature of aural surgery.

C. H. B.

Art. XXVIII.—*Transactions of the American Gynæcological Society.* Vol. I. For the year 1876. 8vo. pp. ix., 387. Boston: H. O. Houghton & Co., 1877.

This Society was inaugurated in New York on June 3, 1876, and held its first annual meeting in that city on Sept. 13, 14, and 15, 1876, adjourning to meet in Boston on the 30th of May of this year. The first President was Dr. Fordyce Barker, of New York; and at the first meeting twenty papers were presented.

From the character of the men composing this medical body, we may look for a number of valuable papers in the future. The volume before us is a very creditable commencement, both as to material and appearance.

The first paper which we shall notice is on *The Etiology of Uterine Flexures, with the proper mode of Treatment indicated.* By Thomas Addis Emmet, M.D., of New York. The large experience of the author entitles him to speak with authority upon the diseases peculiar to women, and to be heard with attention. Much of his paper is statistical, and valuable as such, because based upon a tabulated collection of 2447 cases of the diseases and injuries of women. We beg to call attention to a few of its salient points.

Of all the forms of flexure, 25.21 per cent. were unmarried; 54.78 per cent. sterile; and 19.42 per cent. fruitful. The proportion of flexures to all other conditions, on a general average, 14.09 per cent.

We find but seven females in 182 cases of flexure of the cervix where impregnation was supposed to have taken place. In five cases miscarriage had been suspected by their physicians; in two only had any expelled mass been shown, and these were not believed pregnant beyond the second month.

> "My own belief," says Dr. Emmet, "is that future observation will settle the point that the existence of a flexure of the cervix should be proof that impregnation had never taken place." (Page 51.)
>
> "The average age of puberty for the total number with flexures is a little less than the general average in all women."
>
> "Flexures of the cervix have their origin at about the age of puberty by the balance being lost between the relative growth of the body and cervix. From the earliest development of the uterus until pregnancy, some degree of anteversion exists as a rule. With the uterus in this position, the neck cannot be developed to an undue length without forcing the cervix forward in the axis of the vagina, where the least resistance is offered. As the body lies forward, the cervix must become bent upon itself, at or near the vaginal junction, and thus the flexure is formed. This condition must exist, or the uterus will become retroverted, the

result being determined by the fulness or absence of the posterior cul-de-sac of the vagina. If the cervix is small enough to be readily bent upon itself, the flexure takes place; but if the contrary be the case, and the cul-de-sac be small, retroversion of the organ will occur." (Page 67.)

"For the relief of the flexure at the vaginal junction, I always divide with scissors the posterior lip backward in the median line. . . . . We must, however, be certain that no tendency to cellulitis exists, and that the patient is in a proper condition for the operation."

"For flexures of the body, the rule of practice is to be reversed, since no operation can be of the slightest benefit so long as the condition exists which caused the flexure."

"The chief reliance for giving tone to the pelvic vessels, and for removing the chronic state of venous saturation, as it were, lies in the proper use of the hot-water vaginal injections, at a temperature of from 100° to 110°, in accordance with the urgency of the case."

The next paper is on *Cicatrices of the Cervix Uteri and Vagina.* Its author, Dr. A. J. C. SKENE, of Brooklyn, N. Y., recommends the immediate closure by suture of all lacerations occurring in parturition, so as to avoid the formation of cicatricial contractions, and the pains and inconveniences, as well as often deranged nervous system resulting therefrom. He counsels also avoiding the use of caustics, especially in erosions of the cervix; remarking that the chief inconvenience arises where an uninterrupted cicatrix surrounds and contracts the cervix and vagina.

Dr. Emmet recommends the excision or the division and dilatation of the cicatrices according to character and location, preferring the glass vaginal dilator of Dr. Sims to the slippery-elm or other dilating tents ordinarily used, except in the case of stenosis of the cervix, in which he employs the sea-tangle.

Dr. ROBERT BATTEY, of Rome, Georgia, contributes a paper on *Extirpation of the functionally active Ovaries for the Remedy of otherwise incurable Diseases.* Dr. Battey has dropped his former term of "*normal ovariotomy*" as applied to this operation, in deference to professional opposition, but still continues its performance, although it is for many reasons a very questionable plan of relief, and not very reliable as to results. He reports ten cases, which we will reduce to a tabular form.

1. Mode of removal—by abdominal section, 1; by vaginal section, 9.
2. Removal of one ovary, 4; of both ovaries, 6.
3. Social state—single women, 3; married women, 7.
4. Causes for operation—epilepsy, etc., 1; neuralgia of ovaries, etc., 9.
5. Results—complete cures, 3; incomplete, 5; deaths, 2.

Dr. Battey being absent from sickness, we shall not be able to chronicle the opinions held by the Society, as the discussion was postponed.

Although there are women in our land whose lives are rendered miserable and wretched to an extreme degree by reason of the influence of their ovaries as the originators of disease, we are not prepared to recommend or sanction their removal, in view of the dangers of the operation, and the uncertainty of its curative results. In cases of epilepsy directly traceable to ovarian disease or influence, in which the intellectual powers are becoming involved, it may be well to operate; but, where there is no epilepsy, there should be danger to life to justify fully a resort to the knife.

Dr. J. MATTHEWS DUNCAN, of Edinburgh, Scotland, is the author of a paper on *Central Rupture of the Perineum.* Dr. Duncan refers more particularly to what may be regarded as several forms of partial perineal crack or split; and says that this may affect the skin partially, extend through the skin, and expose the subjacent cellular tissue; may affect the vagina only; and may affect skin on one side and vagina on the other, but not perforate entirely the intervening tissue. In proof of these statements he reports several typical cases.

Of complete central perforating rupture, he remarks: "It happens frequently that the child is not born through the rupture, or new exit from the vagina, but through the proper opening of the canal; and, in such a case, the passage of the head will produce the same vaginal and perineal lacerations as if the central rupture had not previously occurred. Now, under such circumstances, it is very likely that the ordinary perineal laceration, if it occur, will be conjoined with the central one, and the relative extents of the two will be incapable of being decided by subsequent examination." (Page 125.)

If it were proper to deliver all women under ocular inspection, and to examine their perineums and vaginas immediately afterwards, we should no doubt find that ruptures and fissures of the vagina, skin, and perineum are much more common than we are in the habit of believing them to be. In fact, this has been demonstrated to be the case under hospital observation in recent years.

Viburnum Prunifolium (Black Haw); its uses in the Treatment of the Diseases of Women, is the title of a paper from the pen of Dr. EDWARD W. JENKS, of Detroit, Michigan. The viburnum possesses the properties of a stimulant tonic, with a peculiar influence in preventing abortion, whether habitual or otherwise. In the abortive habit, Dr. Jenks begins the use of the remedy two days before the usual date of the menstrual appearance, and continues it until two days beyond the period shall have passed. He also recommends its use in dysmenorrhœa with menstrual excess; and in the menorrhagia or metrorrhagia existing in cases of phthisis, organic disease of heart, hepatic disorders, anæmia, malarial diseases, and change of life. Six years' experience in hospital and private practice, and the confirmation of judgment on the part of several Detroit physicians, appear to render it probable that this is a valuable remedy, especially in preventing abortion. What is the physiological action of this drug does not appear. If it will break up an abortive habit, after the failure of opium, it will be hailed as an important addition to our materia medica; and this should not be difficult to establish if true.

Dr. THEOPHILUS PARVIN, of Indianapolis, Ind., reports a case of *Xenomenia* (the old term for vicarious menstrual hemorrhage) in a girl of sixteen, in whom both lips became enlarged, dark coloured, and apparently verging on gangrene. Blood oozed from the inner surface of the lower lip for four days, and the mouth then returned to its normal appearance. She had menstruated normally at fourteen, and for two years subsequently; then as above, and on two subsequent occasions whilst under observation.

Dr. ROBERT BARNES, of London, read a paper *On the Relations of Pregnancy to General Pathology*. The points touched upon were introduced mainly as matters for more extended inquiry and investigation.

The Spontaneous and Artificial Destruction and Expulsion of Fibrous Tumours of the Uterus is the title of a paper read by Dr. WILLIAM H. BYFORD, of Chicago, Ill. After referring to numerous records of cases, and in particular to a recent one of his own, where fibrous tumours had been gradually expelled from the uterus in a disintegrated state, he brought up the question of the attempts that have been made to imitate nature, by exciting uterine action under the continued use of ergot. The first ergotic delivery was, as far as known to Dr. Byford, produced under the treatment of Dr. H. P. Merriman, in 1875. The records of two successful cases were given by Dr. Byford, which were treated subsequently by himself. After referring to the difficulties of procuring reliable ergot, as stated by Dr. Squibb, of New York, he thus writes with regard to the kind of cases most likely to be benefited:—

"We can often select the cases in which good results may be expected. These are from conditions which are usually reliable for this purpose. They are smoothness of contour, hemorrhage, lengthened uterine cavity, and elasticity. A smooth, round tumour denotes, for the most part, uniform textural development; hemorrhage, a certain proximity to the mucous membrane; a lengthened cavity, great increase in the length and strength of the fibres; and elasticity, assures us of the fact that cartilaginoid or calcareous degeneration has not begun in the tumour."

Dr. T. GAILLARD THOMAS, of New York, reported a *Case of Abdominal Pregnancy*, for which he had performed the operation of "Laparotomy," with success to the mother. Woman married, aged 26, one child living, two abortions, pregnant the full period, no movement of fœtus for some time. Labour threatened in February, 1876. Came under care of Dr. Thomas April 13, 1876. Abdomen found as large as usual in women at full terms of pregnancy; uterine cavity 3½ inches long. April 23d, removed four quarts of sero-purulent fluid by aspirator; a large movable body could now be felt, which was decided to be a fœtus. Laparotomy performed on May 10th; child a female, not decomposed, 18½ inches long, 7 pounds weight; no fœtal cyst; placenta in left iliac fossa. Cause of death in fœtus evidently due to a long hair wound round and round the funis.

The placenta was left undisturbed; wound closed except at lower part, into which a glass drainage tube was inserted. Patient did well until May 24, when she had a slight chill, followed by high fever, temperature 104°, pulse 130; mass of loose, very fetid blood, removed from abdomen by finger, aided by a stream of warm carbolized water; antiseptic injections used every eight hours, until after forty-eight hours, when dangerous symptoms disappeared. Five weeks after operation a portion of placenta protruded, and the whole was removed, which was soon followed by the entire recovery of the patient.

Three important steps appear absolutely essential to success in this operation: 1. A positive diagnosis. 2. Non-removal of the placenta. 3. Septic injections into the abdominal cavity, where there are fetid discharges. This system of washing out the abdominal cavity was practised as long back as in 1827, by Dr. J. L. Richmond, of Newton, Ohio, after the operation of gastro-hystorotomy for vaginal occlusion, the discharges escaping by the lower part of the abdominal wound.

Dr. HENRY F. CAMPBELL, M.D., of Augusta, Georgia, contributes a paper on *Pneumatic Self-Replacement in Dislocations of the Gravid and Non-Gravid Uterus*. This essay covers a subject that has been before referred to in this Journal, in connection with a former paper by the same author. In this present contribution he goes back as far as 1701, and shows that the position on the knees-and-elbows was long ago, and for a long period, practised, but ultimately fell into disuse. He shows also the various purposes for which this position has been selected, and for which it is adapted; and claims to have revived the use of it for the automatic replacement of the uterus, especially where the organ is retroverted. He enters, we think, at entirely too great a length into the physical reasons for his method, all of which might have been explained in a few words. A woman is put on her elbows and knees; the abdominal and pelvic viscera tend to gravitate towards the diaphragm, but cannot move because retained by atmospheric pressure; air is then admitted into the vagina, the pressure is taken away, gravitation of the viscera takes place, the uterus partly by its own weight and partly by its peritoneal connections falls, or is drawn into a normal position, if not so previously; the vagina is fully dilated, and extended in length to its full limit; and the intestines are carried into the upper part of the abdominal cavity.

Dr. Campbell recommends this position in prolapsus of the funis; for examinations of the vagina; and for replacing the uterus, prior to the introduction of a pessary, which he secures *in situ*, by causing the patient to rise on her knees whilst he holds it in position behind the cervix. From the discussion that followed the reading of the paper, it would appear that atmospheric pressure has been resorted to for some years back, by other Fellows, in replacing the uterus.

Dr. WM. L. RICHARDSON, of Boston, Mass., presented a paper *On Hydrate of Chloral in Obstetric Practice*, with reports of clinical cases. He recommends its use in the *vomiting in pregnancy*, grs. xv, a quarter of an hour before meals, or if not tolerated, grs. xxx, per rectum at first, and then by the mouth subsequently. In *after pains*, sometimes combined with ergot. As an *anæsthetic during labour*, for the relief of short sharp pains. In *puerperal convulsions*, combined with bromide of potassium. And for *insomnia* after tedious and exhausting labours. He does not regard it as at all likely ever to take the place of ether and chloroform as an anæsthetic in labour cases.

Dr. JAMES R. CHADWICK, of Boston, reported a case of *Labour complicated with Uterine Fibroids and Placenta Prævia*, and gave an historical *resumé* of seven other cases that he had been able to collect. Mrs. M., æt. 42; first labour; abdominal tumour diagnosed five years before; menstruation excessive, and metrorrhagia frequent; careful examination determined the existence of pregnancy as well as the tumour; heart-sounds heard two inches below umbilicus. The child lay transversely with the back towards the pubes, and the head in the right side below the tumour in the right hypochondriac region.

Labour came on at term; ether given; cervix dilated by digital pressure and manipulation; border of placenta over the os; segment peeled off and brought into cervix; hemorrhage slight; placenta attached also over seat of large intramural fibroid. Feet seized and brought down, and finally delivery completed after much force both in traction and pressure upon the abdomen. Fœtus asphyxiated, but restored; weighed ten pounds. After removal of placenta, a transverse rupture of the vagina three or more inches long was found, just below insertion into posterior lip of cervix. On fourth day septicæmia and delirium set in, and on fifth day she died; no auptopsy.

Of the seven other cases referred to, four were delivered at full term, one at 3½ and two at 8 months. All delivered by version, except the early miscarriage. Four died, three of hemorrhage and one of septicæmia. One case at full term recovered, and the tumours disappeared by absorption; so also the one at eight months. The case of miscarriage at 3½ months recovered. Five deaths to three recoveries, in eight cases.

Dr. EMIL NOEGGERATH, of New York, read a long article entitled *Latent Gonorrhœa, especially with regard to its Influence on Fertility in Women.* Five years ago the author startled the medical world by his researches upon this subject, published in the German language, which met with great professional opposition and objection. With additional observation and experience he again presents his claims for credence, and we must at least accord him the merit of originality and honesty therein; although we cannot see, without much more positive proof, that he has at all controverted the prevalent belief in the nature of gonorrhœal infection. That there may be a chronic unconscious gonorrhœa in man, capable in some instances of conveying the disease, is possible; but that it prevails to the extent claimed by Dr. Noeggerath, we are not prepared to believe. That sterility is too often attributed to the wife when not at fault, we are made aware from the fact that attention recently drawn toward the husband's condition has shown, that double epididymitis is capable of destroying his powers of procreation without apparently affecting his venereal capacity, if we are to judge by the fact that the seminal fluid under the microscope shows the non-existence of any living spermatozoa.

The discussion of the communication before the Society showed that the views of the author were much at variance with those held by the Fellows, who, whilst startled at the points claimed to have been proved, and believing in the care with which the observations were made, could not bring their minds to believe that the conclusions claimed to have been reached were established beyond anything more than upon a conjectural basis.

A paper was received from Dr. ALFRED WILTSHIRE, of London, Eng., who was not able to be present, *On Death from Urinæmia in certain cases of Malignant Disease of the Uterus.* He attributes the uræmic poisoning to occlusion of both ureters, from extension of disease to the neck and lower parts of the bladder, from the anterior part of the cervix uteri. He recommends that opium should not be resorted to where there are any threatenings of uræmic mischief, for fear of its checking the renal secretion. In the cases examined by him, there was no dilatation of the ureters, death having taken place rapidly.

In the discussion that followed, the objection to the use of opium except where there was actual or approaching coma was not sustained, the existence of pain requiring the remedy for relief, and it being considered preferable to any substitute. Several Fellows spoke upon the value of morphia administered hypodermically in puerperal convulsions; and opium was also claimed to be indicated for the relief of pain in advanced Bright's disease.

Dr. WILLIAM GOODELL, of Philadelphia, presented a *Clinical Memoir on some of the Genital Lesions of Childbirth*, in which he specially advocated the importance of immediately closing by sutures all lacerations of the perineum not involving the sphincter ani; and claimed that in the exceptional cases also, it is better to make the attempt, even if a second operation should be found necessary, than to make no effort at closure. The general opinion elicited by the discussion was favourable to the primary operation especially for partial lacerations.

Dr. Goodell cautions the profession against the use of silvered iron wire, as it is apt to become brittle after being long carried in the pocket, and recommends testing the strength of metallic sutures before using them in an operation, to insure their holding.

Three Cases of Cystic Tumours of the Abdomen and Pelvis were reported by Dr. GEORGE H. BIXBY, of Boston, Mass., and one through Prof. BYFORD. CASE I.—39 years old; married at 22; seven years previously was attacked with hæmatocele; for two years had been suffering paroxysmal pains in left ovarian region; uterus found fixed and turned to the right, its cavity two and a half inches deep; bimanual palpation discovered evidences of fluctuation in left ovarian and super-pubic regions; three pints of serum drawn by aspiration through Douglas's fossa; no bad symptoms followed; well in three weeks.

CASE II.—Per Dr. BYFORD. Had been an invalid two years; very much broken in health. "Inquiry disclosed chronic rectitis; and vaginal exploration revealed a soft, fluctuating tumour occupying the region of Douglas's cul-de-sac, pushing the uterus forward and downward, perceptible externally in front of the sacral promontory." Puncture by aspirator removed a pint and a half of clear, inodorous serum; sac filled in sixteen days; was again opened, and half a pint of fetid, sero-purulent fluid withdrawn; catheter introduced, and daily injections of iodine water and other mild disinfecting fluids employed until October 20. Discharges of pus occurred spontaneously in November, December, and February; after which patient recovered her health.

CASE III.—Fifty-four years old. In 1873 she discovered a tumour, size of a small orange, in right hepatic region, immediately below diaphragm. In 1875 it had nearly reached ovarian region; abdomen twenty-four inches in circumference; ovoid-shaped, fluctuating tumour in right ovarian region, extending upward towards diaphragm; fluctuation felt in Douglas's cul-de-sac; uterus free and movable. Aspiration through abdominal walls; five pints of yellowish-brown liquid, containing abundant crystals of cholesterine, removed. No refilling of sac, or unfavourable symptoms followed.

CASE IV.—Thirty-six years old. Fluctuating tumour behind uterus; not punctured for two years; no increase of size; twenty ounces of light-brown fluid removed. Two years later no tumour in the Douglas's cul-de-sac; eight ounces of fluid removed from left side of uterus. Sac refilled by second year, and eight ounces more removed. Presumed to have been a multilocular cyst of the broad ligament, four cases of which were found under abdominal section by Dr. Péan, of Paris.

These records are valuable, as showing the improvements that have taken place in the methods of diagnosis of pelvic collections of pus and serum, and the means of cure by surgical interference. In the last number of this Journal, page 358, will be found a clinical report of nine cases, by Prof. Brickell, bearing on this subject.

Dr. E. R. PEASLEE, of New York, reports a case of *solid uterus bipartitus* in a married woman, thirty-three years old, who was subject almost weekly to epileptic seizures, and to a continual pain in the loins. From the severity of the epilepsy, and gradual impairment of her intellect, together with generally impaired health, it was decided, in consultation with Drs. Emmet and Thomas, to remove her ovaries. This was done by abdominal section, and she died of peritonitis in sixty hours. Externally this woman bore all the marks of perfect development, although she had never menstruated, and her vagina terminated in a cul-de-sac at a depth of three inches. The ovaries contained cysts up to the size of a pea, the larger filled with colloid matter, and some of the smaller with blood. The left ovary presented a polypoid projection, which proved to be a cyst filled with both the matters mentioned.

Dr. HENRY F. CAMPBELL, of Augusta, Geo., reported a *Case of a Large Calculus found in the Bladder, after the cure of a Vesico-vaginal Fistula*, and claims that in such cases the calculus must have existed prior to the operation; may have been months or years in forming; and may also have been the cause of the formation of the vesico-vaginal opening by falling between the fœtal head and the pubes during labour. In the case given, the stone was not detected until towards the close of the after-treatment, although catheterism had been frequently practised; and then it was distinguished at the neck of the bladder. An operation at a later period removed the calculus, which was as large as an English walnut. It is a question whether a good-sized calculus can form as rapidly as has been thought in some cases, after closing a fistula, and whether it is not more likely to have been in existence before the operation, and not detected, as in Dr. Campbell's case.

The volume closes with a paper, entitled *Rare Forms of Umbilical Hernia in the Fœtus*, by Dr. JAMES R. CHADWICK, of Boston, and an *Obituary Notice* of the late Dr. Gustav Simon, of Heidelberg, by Dr. PAUL F. MUNDE, of New York.

R. P. H.

Art. XXIX.—*Nutrition in Health and Disease: A Contribution to Hygiene and to Clinical Medicine.* By James Henry Bennet, M.D., Member of the Royal College of Physicians, London; Doctor of Medicine of the University of Paris, etc. etc. 8vo. pp. 248. Second edition; Lindsay & Blakiston, 1876.

So long ago as 1858, the first edition of this book was published, and was received by the profession with much favour. Confirmed invalidism having, shortly afterwards, overtaken its author, he determined to follow to the letter the hygienic principles he had propounded in his work; owing to which, as he tells us in his preface, "I then escaped death, and now flattering friends tell me that I am a better man, physically, than I was twenty years ago." With his confidence in those principles thus reassured by personal experience, and further confirmed by observation upon others, he has revised the book, and brought its physiological portion into conformity with recent science. As a writer for thirty years before the public, he chiefly addresses himself to that "benevolent sympathetic auditory" of his previous readers, over whom he hopes to exercise a favourable influence.

The first four chapters of the work are occupied with a general account of the physiology of nutrition. As above said, it conforms essentially to the later developments of science upon the subject. An oversight occurs, however (p. 8), in ascribing to Liebig the opinion that "force" (other than heat) is derived in the animal economy all but exclusively from the assimilation of nitrogenous *food.* Liebig taught that the chief, if not exclusive, source of muscular energy is the metamorphosis of the nitrogenous muscular *tissue.* This is the view which has been corrected by the comparatively recent investigations of Fick, Wislicenus, Frankland, and others; showing that it is really the material of food (*usually* carbohydrogenous, *exceptionally* albuminoid food) whose oxidation in the blood yields motor energy.

There seems also to be given in these chapters too summary a statement of the "two principal functions" of the liver; as "the secretion of bile and that of glycogen." Assimilation, as a hepatic function, must include much more than the latter process. Facts alluded to by our author in subsequent parts of his book agree, also, very well with the apparent results of the observations and experiments of Budge, Cyon, and Brouardel, making it probable that *urea* may be formed in the liver.

Upon the constantly mooted question of the effects of alcoholic beverages, Dr. Bennet approaches the position of the late Dr. Anstie, in asserting (p. 97) that "beer, wine, spirits etc., may be ingested in moderation with positive advantage, especially in northern and temperate latitudes, by the healthy members of the community." We believe that the denial of this by Drs. B. W. Richardson, Parkes, and other sanitarian investigators, confirmed by the observation, in practice, of Sir Henry Thompson, is fully warranted; and that it needs to be accepted as a maxim in dietetic hygiene, that, for persons in health, not underfed nor overworked, *alcohol is always superfluous,* and may be expected to be injurious, in proportion to the amount and frequency of its use. This affords a safe ground of common standing for physicians, with all other rational advocates of temperance; quite different, moreover, from the position which was unfortunately allowed to obtain the formal sanction of one of the Sections of the International Medical Congress of 1876: to the effect that alcohol has not been shown (of course meaning under *any circumstances*) to possess any definite and positive food-value. Under the circumstances of morbid debility, of various origins, the evidence proving its important value as an *accessory or exceptional food* so abounds, and is so clear in its kind, that we cannot understand how any one can have seen anything at all of the practice of medicine without becoming familiar with it. Dr. Bennet is careful, in several parts of his book, to insist upon the greatness of the damage done to the economy by *excessive* use of alcohol in any form. We find, for example (p. 104), the following sentence:—

> "From what precedes it will be seen that it is by no means necessary that alcoholic stimulants be ingested in large quantities to do mischief, or, to use the phrase already employed, to be taken in excess. If stimulants in any quantity, however small, interfere with the digestive and nutritive functions, they may be said to be taken in excess.
>
> "Clinical experience has led me to the conclusion that they do so interfere whenever the digestion is sufficiently disturbed for the urine to be subsequently loaded with morbid salts, and more especially to be rendered turbid by the presence of urate of ammonia, a few hours after the ingestion of food, at a temperature of 40° to 50° Fahr. However weak the patient, I am persuaded that, as a general rule, no good can be derived from stimulants when this occurs. This clinical fact is a most valuable guide in practice with reference to the administration of stimulants to the weak and to the dyspeptic."

Chapter VI. of the book is devoted especially to the expansion of the idea, derived from our author's experience, of the great diagnostic and practical importance of *urinary deposits in connection with defective digestion and nutrition.* These deposits, as he points out, "may or may not be accompanied by turbidity of the urine. They consist principally of uric acid, urate of ammonia, purpurine or colouring matter, oxalate of lime, the triple phosphates, the neutral phosphate of lime," etc. In warm weather, to test for urate of ammonia, he advises that a bottle of the urine should be immersed in cold or even iced water. The greatest care should be taken that the urine secreted subsequently to the process of the digestion of food, and modified by the presence of recently formed chyle in the blood, should not be mixed with that secreted when the organic disintegration of tissue alone is taking place. Practically, it is from three to five hours after the ingestion of usual articles of food, that the urine will be affected in its character by the salts eliminated from the newly elaborated chyle. The presence of a highly coloured lithatic deposit may be concluded to show not only that there is "something wrong in the nitrogen supply, elaboration, and elimination, but also something wrong in the normal excretion of carbon, some arrest in the action of the lungs, liver, or skin, for which the kidneys are endeavouring to make amends."

Dr. Bennet firmly believes that the development of Bright's disease, and that of diabetes, is generally preceded by *years* of defective nutrition and morbid urinary deposits. Were this generally known and accepted by the profession, he thinks that, by timely measures of prevention, chiefly regulative and hygienic, the prevalence and mortality of these affections might be considerably diminished.

To advert, even very briefly, to all the practical suggestions thrown out by Dr. Bennet concerning self-management and medical advice in regard to diet, would require a lengthened review. We cannot omit advising practical men to read the book carefully; without necessarily pinning their faith to all its *dicta.* Points of rather especial interest are the following: The author's assertion of the large importance in individuals, of lifelong *habits*, in reference to the quantity, quality, and frequency of meals; a denial of the advantage, in any respect, of raw meat over that which has been cooked, in conditions of debility; a high valuation of eggs and fish, milk and fowl, as food for those whose digestion is weak; mention of the fact that *pain* during the time of digestion is not a positive sign of imperfect disposal of food taken; and the indication of the error, not uncommon especially among Americans, of taking very cold or iced beverages during meals. He has, it is said (p. 177), cured many dyspeptics by making them always drink warm fluids at meals. Abuse of *purgatives* by dyspeptics is also alluded to.

Better far than the daily drastic pill will be, no doubt, in many cases, besides the use of laxative food, as fruit, etc., "the shower-bath, or cold sponging in the morning, a glass of cold water on rising, a dessert or tablespoonful of sweet olive oil night and morning, or half an hour's walk before breakfast."

Perhaps the most interesting portion of Dr. Bennet's book is his consideration, in an appendix, of the question "Why do successful medical men often die prematurely?" Regarding the mortality in the medical profession, after fifty years, as greater than that of other professions, it is held also that it is greatest of all amongst its most eminent and successful members. May it not be, then, chiefly *because* they have been successful and *overworked?*

"The peculiar feature of the medical profession is, on the one hand, that work increases with age, and, on the other, that the public do not consent to look upon aging medical men as veterans, but exact from them, to the end, the labour of youth. . . . . The barrister has his junior counsel who prepares his briefs, the solicitor his head clerks, the vicar his curates, the colonel his staff of officers, the merchant or banker his junior partners and clerks; but the successful consulting physician or surgeon must stand alone, whatever his age, and do his work entirely himself as long as he practises. Thus, *after* the age of forty or fifty, the hours of positive work increase rapidly, instead of diminishing. . . . .

"As the brain is the last to give way in the intellectual man, he works on under mental and nervous pressure. . . . . Death ensues through some form of nutritive aberration, which has been slowly but surely progressing. Such was the case with our recently-mourned brethren, Simpson and Nunneley, the one fifty-eight, the other sixty-one.

"Can this sad expenditure of life amongst the worthiest of our profession be arrested, be avoided? I think myself that it might, if we could cease to live as if we were immortal, as if the diseases we saw daily did not pertain to us; if we would listen to the teachings of physiology, and discard the miserable vanity of thinking that we are exceptions to the general rule. . . . . To accept this lesson, however, we must analyze ourselves, and, if we find ourselves wanting in vital power, thrust aside the scarlet cloak of nerve stimulants—alcohol, coffee, tea—by means of which, I believe, it is that efforts inconsistent with real vital and nutritive power are made by workers in general, and by medical men amongst the number."

"Every June a *conversazione* takes place at the College of Physicians, which is attended by most of the medical and surgical celebrities of the day. This meeting gives an admirable opportunity, year after year, for watching the ravages of time and work. The young physicians and surgeons, as also those who have acquired reputation, but as yet little practice, are more or less pink and rosy; their nutrition is mostly good. But it is far different with the heads of the profession, with men above fifty, on whose shoulders rests the weight of London consulting practice, and who are making large incomes; they are mostly pale, sallow, anæmic. As I walk about, I feel like Cassandra at the siege of Troy, and mentally prophesy evil—fatty hearts, atheromatous deposits in the arteries, degeneration of tissue, as the probable result of lives passed in contempt of the laws of hygiene and physiology." H. H.

Art. XXX.—*Civil Malpractice. A Treatise on Surgical Jurisprudence. With Chapters on Skill in Diagnosis and Treatment, Prognosis in Fractures, and on Negligence.* By Milo A. McClelland, M.D. 8vo. pp. xx., 554. New York: Hurd & Houghton, 1877.

This very handsome book will prove of great value to those unfortunate members of the profession who are the victims of suits for malpractice, especially where the case at issue is one of fracture. The collected cases, where adjudication has been had, include many English ones, and most of those which have come prominently before the profession in this country of late years.

The first chapter is devoted to ethical malpractice, which is defined to be, those cases "in which persons claiming to be medical men bring suits against physicians, or against medical societies, for alleged insults to their professional dignity." It is shown that to term another a quack is an indulgence for which the person so indulging may be made pecuniarily responsible; but it is evidently safe to hold a system up to ridicule, as Dr. McClelland transcribes and comments upon some homœopathic extracts in a way that we should suppose would be most painful to the professional dignity of the disciples of Hahnemann.

Six chapters are devoted to the consideration of adjudicated cases of alleged malpractice in the treatment of fractures. As a general principle it is important to observe, that reasonable skill only is required in the care of any case. It is not reasonable to expect the same amount of special skill in the isolated country physician, who rarely sees a fracture, and the hospital surgeon in a large town, under whose care come every day cases of fracture in all their variety, and who, in cases of unusual difficulty, has professional brethren to call in, and can command all the appliances of the science and art of surgery. It is, of course, impossible to fix any definite standard, and each case, as in actual practice, must stand upon its individual merits. Here the personal standing of the practitioner, with the evidence of his having taken the necessary steps to obtain the requisite knowledge to enable him properly to treat the cases submitted to his care, must be the groundwork of his defence. Courts of law decline to recognize differences between schools of medicine, and the physician will be judged according to the principles of the system he professes to practise. It is a well-recognized principle that the omission of proper treatment involves the same responsibility as where wrong measures are resorted to. The fractures treated of are those near the shoulder-joint—near the elbow-joint—near the wrist-joint—fractures of the femur—near the knee, and in the leg and near the ankle-joint.

In successive chapters, alleged malpractice in dislocations, in amputations, in ophthalmic cases, and in obstetric cases, are discussed, and scattered through them will be found the principles of the science of medical jurisprudence as brought out in the various charges of the courts before whom the cases have been tried. This arrangement, while it makes the report of each case very valuable, renders it very difficult to separate the broad principles upon which the science rests. In fact, the charge of a judge may be a model of forensic reasoning, and especially interesting to those learned in the law, but the average medical mind finds it very tedious reading, and we cannot but think that Dr. McClelland would have made his book both more valuable and more interesting had he analyzed the legal documents, and presented an epitome of their contents, instead of leaving his readers to perform this tiresome task for themselves. It is but right to say that the tables of injuries, of contents, and of cases, together with a good index, make it comparatively easy to find any topic desired, so that as a work of reference the book is very valuable. Again, we have always felt that it is a dangerous thing for a physician to meddle with law—*ne sutor ultra crepidam.* If the surgeon carefully and honestly treats a case in accordance with the approved methods of *his* art, he will find in that course a much surer defence than he can derive from a smattering of legal knowledge.

Among the miscellaneous cases contained in Chapter XII. are Venesection, Interstitial Absorption from Inflammatory Softening, Opening an Abscess, Secondary Hemorrhage, Gangrene from Frost-bite, Amputation of a Breast, Using a Bougie, Bathing, Vaccination, Felon and Erysipelas. Here will be found the cases in which Drs. Gross, Reese, and Sayre were made defendants, but beyond the bare fact that they were each gentlemen of prominence who were the subject of malicious prosecutions, there were no important general principles involved; and upon proof that proper treatment was employed, the plaintiffs were non-suited. In the case of Dr. Sayre, he was awarded five per cent. of the amount of damages claimed, as some compensation for the trouble and expense he had so needlessly been put to. In that case, also, there was a very important change of procedure introduced, which consisted of the reference of the medical points in the case to three surgical experts, upon whose decision the judgment of the Court was founded. We do not know how lawyers in this country look upon this method, but it can hardly fail to commend itself to an unbiassed mind. It is the system which has for a long time been in effect in Prussia, where it has been found to work well. It will certainly meet the approval of physicians, and is strictly in accord with the principle upon which trial by jury is founded, namely, that a man shall be judged by his peers. Now, when a question involving the propriety of medical or surgical treatment is at issue, an ordinary panel will not furnish men who are the peers of the physician who is placed upon his defence, who is really upon trial; while, as the question of malicious intent is but rarely raised, the complaining layman can hardly pretend that injustice is done to him by a decision on medical matters being based upon the facts of medical science. With regard to the reversal of the damages, and placing them upon the complainant, we fear that, unless the lawyers who undertake these cases upon shares were made parties in the suit, which would seem equitable, there would be little prospect of the physician reaping any advantage from an award in his favour against the class of individuals who are generally the principals in these suits. We are not informed whether Dr. Sayre ever collected the amount of the judgment given in his favour, or whether the plaintiff appealed from the judgment of the Court.

The next chapter, No. XIII., treats of alleged malpractice in medical cases, while the following three are occupied with a discussion of "Skill in Diagnosis," "Skill in Treatment," and "Prognosis in Fractures." In them will be found extracts from recognized surgical authorities, with abstracts of their opinions—very good, but having their place more properly in a treatise on surgery rather than in one on surgical jurisprudence. In the chapter upon prognosis in fractures are contained some elaborate tables from Sayre, Hyde, Van Wagenen, and Hamilton.

The remainder of the volume is occupied with chapters upon "Negligence," "Contributory Negligence," and "Negligence of Physicians and Surgeons." They contain much sound common sense, and will be read with profit by those who have not had their attention drawn to the matter.

The book, as a whole, will be valuable principally as a work of reference, and more especially so to the legal profession from the full reports of cases it contains. It is in no sense such a treatise upon medical jurisprudence as is much needed in this country for the instruction of physicians and students of medicine. We cannot close this brief notice without drawing attention to the tables of contents at the beginning of the volume, and the index at its close, which are most excellent, and worthy of the highest praise. While we have indulged in some adverse criticism, we at the same time think that Dr. McClelland has made an important contribution to medical jurisprudence; always sound, modest, and sensible, his opinions are worthy of careful perusal, and will prove safe guides to the medical man afflicted by a civil and malicious prosecution. S. A.

Art. XXXI.—*Cyclopædia of the Practice of Medicine.* Edited by Dr. H. von Ziemssen.

Vol. VII. *Diseases of the Chylopoetic System, together with the Chapters on Diseases of the Naso-Pharyngeal Cavity and Pharynx, Laryngitis Phlegmonosa, Perichondritis Laryngea, Ulcerations and Tumours, and Neuroses of the Larynx.* By Prof. Hermann Wendt, of Leipzig; Prof. W. Leube, of Jena; Dr. O. Leichtenstern, of Tübingen; Prof. Arnold Heller, of Kiel; Prof. H. von Ziemssen, of Munich; and Dr. A. Steffen, of Stettin. Albert H. Buck, M.D., New York, Editor of American Edition. 8vo. pp. xiv., 1046. New York: William Wood & Co., 1876.

Vol. XII. *Diseases of the Brain and its Membranes.* pp. xii., 902. New York: William Wood & Co., 1877.

The style in which this work is issued by the American publishers unfortunately renders the volumes bulky and unwieldy, and has necessitated the transfer, in one or two instances, of certain chapters from the volume to which they properly belong to another in which, if this fact were not known, it would be difficult to explain their presence. This is the reason for the chapters on diseases of the pharynx and larynx being bound up together with those on diseases of the stomach and bowels. This arrangement, although probably as good as can be made under the circumstances, is not without its disadvantages, as the student is hardly likely to look for a description of the neuroses of the larynx in a volume labelled "Diseases of the Chylopoetic System." It would have been better to have included in this volume the chapters treating of the affections of some of the organs connected with this system.

Prof. Heller is the author of the chapters on intestinal parasites; Dr. Leichtenstern of those on constrictions, occlusions, and displacements of the intestines; while all the rest of this portion of the work, upwards of 350 pages, is from the pen of Prof. Leube. In the main this gentleman has done his work in a very satisfactory manner, but we cannot but fear that the American physician who expects to make this work his guide in practice, will find the descriptions of cholera infantum and cholera morbus exceedingly meagre, not more than six or eight pages being given up to the discussion of the pathology, symptomatology, and treatment of these diseases. This is certainly a deficiency in a work which devotes forty pages in the same volume to a disease of such comparative insignificance as spasm of the glottis. It is, moreover, a deficiency which could have been very readily supplied by the American editor or one of his collaborators.

Dysentery, having been very fully treated of by Dr. Heubner in the first volume under the head of acute infectious diseases, receives of course only an incidental notice in this. Prof. Leube differs from most systematic writers in not according to dyspepsia a separate article. This term includes a group of symptoms which it is true are often connected with some organic disease of the stomach, but just as often, neither during life nor after death, has any lesion of that organ been discovered. The term is therefore a convenient one for clinical use. The most frequent cause of dyspepsia is, in the author's opinion, chronic gastric catarrh, and it is therefore treated of under this head; but he takes care to tell us that he considers the custom of regarding persistent dyspepsia as chronic catarrh of the stomach as a decided mistake in diagnosis. While it is of course proper to restrict the number of terms which like dyspepsia often include a number of different pathological processes, it is not always possible to do so, as the author himself shows in devoting a section to hæmatemesis, which is no more worthy of separate consideration than dyspepsia.

Among the results of hæmatemesis, Prof. Leube mentions one to which we do not remember ever having had our attention specially called. This is the sudden occurrence of an incurable double amaurosis. The ophthalmoscopic examination in such cases reveals only a white coloration of the papillæ, and thinning of the retinal arteries. The hypothesis, the author says, that the general anæmia produced by the loss of blood gives rise to an anæmic condition of the central portion of the optic nerves, resulting in a permanent alteration in these nerve centres, is lacking in plausibility, because blindness may occur after hæmatemesis in the absence of marked anæmia; and, on the other hand, because the total blindness remains after the symptoms of loss of blood have disappeared. Equally unsatisfactory is the hypothesis of an extravasation into the central portions of the optic apparatus, particularly the chiasma during vomiting, because the amaurosis has been observed to occur independently of this act, as in case reported by Fikentscher, in which the amaurosis occurred several days after a concealed gastric hemorrhage. Inasmuch as the amaurosis which follows large bleedings from other organs disappears as soon as the patient regains his strength, the author thinks that "between certain parts of the brain and the vessels or nerves of the stomach, there must exist a nexus, which we cannot at present explain, but for the existence of which we have at least some evidence in the experiments of Schiff, who found that gastric hemorrhages were produced by division of the optic thalami."

In looking over these chapters, we have been struck with the very much larger use the Germans make of the natural mineral waters than we do. Thus in the treatment of ulcer of the stomach the author recommends, for the purpose of expelling the ingesta from the stomach into the small intestines, the use of the alkaline saline mineral waters or their salts, apparently preferring among them—as he does also in the treatment of chronic gastritis—the Carlsbad water, the efficacy of which depends, in his opinion, upon the happy combination of three active salts, the chloride of sodium, the carbonate of soda, and the sulphate of soda. The derangement of appetite, and other dyspeptic symptoms which are noticed when Glauber's salt is used alone, seem to be prevented, Prof. Leube says, by the presence in the water of the other two salts, one of which, the chloride of sodium, promotes digestion, while the other diminishes the excessive acidity of the stomach and promotes the solution of the mucus, generally present in excess in these cases.

There are many other points in the treatment of diseases of the stomach to which, if we had time, we should be glad to call the reader's attention; but we must content ourselves with saying that like most German authors Prof. Leube is an advocate for the use of the stomach-pump, preferring it in most instances, because it removes solid particles as well as liquids, to an instrument consisting simply of a siphon-apparatus attached to the stomach tube, which has superseded it to some extent, because it is generally thought that it is less likely to inflict injury upon the stomach. He goes so far as to say it may occasionally be used in the treatment of ulcer of the stomach; and we have ourselves used it with great relief to distressing symptoms in a case of carcinoma of the stomach, which we have reported elsewhere.

Prof. Heller and Dr. Leichtenstern's articles are exhaustive of the subjects of which they treat, and we regret that we must dismiss them with a brief notice. The latter recommends that before endeavouring to act upon incarcerations or invaginations in the lower part of the ileum by means of injections, the patient should be placed under the influence of chloroform or opium, with the view of producing relaxation of the ileo-cæcal sphincter, as otherwise no liquid will penetrate through this opening into the ileum. He believes that if Hegar's apparatus, which consists simply of a glass funnel, rubber tube, and rectal sound, be used, and the patient be placed in a position which reduces the abdominal pressure as much as possible, such as the knee and elbow, knee and head, or lateral abdominal position, it will be possible to introduce four or five quarts into the intestine. This instrument is also used by Prof. Heller for the purpose of washing out the intestines when these are infested by worms, especially by the oxyuris vermicularis. Simple water, he says, would do very well for this purpose—for in a short time it causes the worms to swell up and burst—but that it is not altogether without an injurious effect on the intestinal mucous membrane. Hence he prefers a solution of castile soap in distilled water of the strength of from one to two and a half grains to the ounce. This has no unpleasant action upon the mucous membrane, but quickly destroys both the worms and their eggs.

Dr. Steffen's article on spasm of the glottis, a disease which we fancy is very much more common on the continent of Europe than in this country, shows that the disease occurs almost exclusively in rickety children, and is much more frequent in boys than in girls. J. H. H.

In Vol. XII. we are presented with articles by Nothnagel, Hitzig, Obernier, Huebner, and Huguenin.

In some respects this volume is superior to its predecessors, but it lacks conciseness and clearness, two attributes which an encyclopaedia should always possess. These shortcomings will strike the reader who attempts to use the index.

The vascular diseases of the brain receive careful treatment by Nothnagel, and this is perhaps the best part of the book. A consideration of the physiology of circulation occupies the first eight pages. The variations in cerebral circulation are tabulated, as—"1, increase in the quantity of arterial blood by displacement of the cerebro-spinal fluid, and the contents of the perivascular lymph spaces; or, when the compensation thus made is insufficient, by elevation of the intra-cranial pressure; 2, venous stasis by a retardation of the arterial afflux; 3, diminution in the aggregate quantity of blood by an afflux of cerebro-spinal fluid; dilatation and flooding of the lymph spaces; or, where this is insufficient, by diminution of the intra-cranial pressure." This introduction is an admirable preparation for "cerebral anæmia" and "hyperæmia" which follow. The remarks upon the symptomatology of the first-named affection are quite graphic, but they are not distinct, and might as well indicate hyperæmia. This objection is a valid one, for both cerebral anæmia and hyperæmia are, in the majority of instances, simple expressions of some general condition. Loss of blood either excessive and sudden, or gradual, is given as a cause, but "cerebral anæmia" in this case is a misnomer—other organs suffering as well as the brain. We are glad to see, however, that Nothnagel gives greater prominence to forms of cerebral anæmia which are distinct, especially the *hydrencephaloid* of Marshall Hall. The article, however, is confusing, for the symptoms of cerebral anæmia and the opposite condition are after all symptoms which are common to many other cerebral neuroses.

No mention is made of the theory of sleep, which has been supposed by many writers to depend always upon anæmia. This we are glad to see, for it is by no means decided that the cerebral vessels are empty during somnolence. He refers very sensibly to the fact that sleep may be a symptom of cerebral hyperæmia.

That this variety of unconsciousness may be dependent upon other conditions than cerebral anæmia is now pretty well settled; for not only does sleep come most readily when the recumbent position is assumed, and there is a determination of blood to the head, but it is highly probable that the experiments that have proved to the satisfaction of some observers that sleep depends upon depleted vessels, are valueless, as any opening into the skull immediately changes the relations of the parts, the surface of the brain being exposed to the pressure of the atmosphere. Nitrite of amyl may be given to a sleeping person without awakening him, and it is more probable that sleep is rather the result of depressed cell action than of any decided vascular variation.

The article upon cerebral hyperæmia is very full and suggestive. The maniacal, paralytic, convulsive, apoplectic, and febrile forms are mentioned, and the observer is cautioned in regard to making a diagnosis of the apoplectiform variety, which is very rare, the condition most likely being a slight cerebral hemorrhage.

Cerebral hemorrhage is very extensively considered, over one hundred pages being devoted to its description. It is by far the most exhaustive article upon the subject that we have read. The author devotes very little attention to post paralytic chorea, and briefly quotes Charcot, entirely neglecting the valuable paper of our distinguished fellow countryman, Weir Mitchell. The joint troubles are also hastily alluded to, while other sequelæ do not receive the attention they deserve.

Meningeal hemorrhage is considered in a very superficial manner, the author merely alluding to its origin as the result of pachymeningitis interna.

Cerebral embolism and thrombosis are carefully sketched, the symptomatology and pathology of these conditions being very thoroughly described. The secondary softening of hemorrhage and embolism, or thrombosis, are considered identical, and no attempt is made to shroud the subject in mystery by describing the several varieties of softening, which after all may be a consequence of vascular occlusion. The remarks upon diagnosis seem to be anything but extensive, and but one page is devoted to treatment.

Obernier contributes an excellent chapter upon brain tumours. The symptomatology is discussed very systematically, but the rest of the article suffers somewhat in the translation, the German being very literally rendered into English. This is to be noticed on page 248, where allusion is made to the psychical condition. The word *illusion* is wrongfully used in several instances, the word *delusion* being probably intended. The author lays great stress upon the fact that gliomata are almost always the result of injury, a conclusion which we are sure is not accepted in its entirety by other writers. He calls attention (p. 263) to the history of injury as one of the positive signs of the existence of a gliomatous tumour, and other equally valuable (?) indications are given upon successive pages. This seems to us a refinement of diagnosis which is impossible, for beyond the existence of a syphilitic or tuberculous cachexia or history and its influence, it is beyond our power to tell before death what may be the nature of any cerebral growth. The advice given by Obernier that "great care is consequently necessary when *precise* localizations are attempted," savors somewhat of the facetious, for the positive diagnosis of cerebral tumour is perhaps one of the most difficult in the whole range of neurological medicine.

Huebner's article upon nervous syphilis may be regarded as one of the best in the volume, and is exhaustive and clear. The subject of syphilis of the peripheral nerves has hitherto received but little attention. Huebner considers that the nerve changes may be primary and secondary, and in the latter, pressure may be made by a neoplasm which produces irritation and ultimately destruction of the nerve, though instances are given where nerves have passed directly through a syphilitic growth without any structural changes being produced.

Attention is also called to the extension of infiltration, and to the syphilitic degeneration of the nerves themselves as a primary change.

The next section of the book, that written by Huguenin, considers the acute and chronic inflammations of the brain and its membranes, and is far from what it should be. The matter is badly arranged, and the information contained is very apt to confuse the reader. There seems to be an unnecessary splitting up of the subject, and the subdivisions do not even possess the merit of distinctness. The section upon pachymeningitis externa and interna are painfully alike; the etiological consideration of these affections being especially tiresome, and there is the sameness which is so highly characteristic of German literature. The nomenclature is bewildering in the extreme. Pachymeningitis externa, pachymeningitis interna, leptomeningitis infantum, tubercular meningitis, basilar meningitis with great ventricular effusion, spontaneous purulent meningitis of the convexity, traumatic meningitis, metastatic meningitis, meningitis of the convexity, convexity meningitis of unknown origin, are a few of the forms mentioned, which, we think, might be condensed under three or four headings; and it is impossible, without great labour and an unwarranted expenditure of time, to discover what one really desires to find out in this badly arranged collection of matter.

Hitzig's articles upon atrophy of the brain conclude the book; and that upon general paralysis of the insane is especially good in its description of pathological changes. The bibliography of the subject is quite extensive, but one cannot help noticing the absence of English names from the list.

The defect of the volume before us seems to be the verbose character of all the articles, and it is necessary to read many dry uninteresting pages before one is reached which contains the information of which we are in search.

A. McL. H.

ART. XXXII.—*Clinical and Physiological Researches on the Nervous System. No. 1. On the Localization of Movements in the Brain.* By J. HUGHLINGS JACKSON, M.D., F.R.C.P., etc. 8vo. pp. xlviii., 37. London: J. & A. Churchill, 1875.

THE present essay first appeared in the *Lancet* in 1873. It is now the intention of the author to collect certain of his fugitive contributions to neurology, that have been published during the last few years in the Lancet, Medical Times and Gazette, London Hospital Reports, Royal London Ophthalmic Hospital Reports, etc., and issue them in uniform style, with preface, annotations, and appendix, to bring them to date and make them fully in accord with more recent observations. The others of the series, announced as preparing, are "On Tumors of the Brain and Optic Neuritis," "On Syphilitic Affections of the Nervous System," "Affections of Sight in Diseases of the Nervous System," and "The Physiology and Pathology of Language."

The views of Dr. Hughlings Jackson on the localization of movements in the brain are sufficiently familiar to our readers to warrant the omission of an extended notice of this reprint, the preface to which is rather more extensive than the original article.

The general principle underlying this clinical study may be briefly stated to be that paralysis and convulsion are not only symptoms of disease, but supply evidence bearing on the localization of movements and impressions in the brain, which, from this point of view, becomes the study of the effects of "destroying lesions" and of the effects of "discharging lesions." So that these symptoms represent experiments on the human brain made by disease, and their phenomena may be considered as imperfectly imitating and supplementing the investigations upon inferior animals made by the hand of the physiologist.

Some of the conclusions of the author may be very briefly summarized as follows:—

Molecular motion is the *sub-stratum* of all mental processes, including sensation and memory.

All the muscles of the body are represented both in the cerebrum and cerebellum, though in different order; the convolutions of the hemispheres, being the highest centres, potentially embrace all the lower, and hence represent the entire body, including heart, bloodvessels, and viscera.

The two cerebral hemispheres correspond in function, although movements of the two sides of the body are represented in different order in each side of the brain; in other words, convolutions similarly situated will not necessarily coincide in function.

In most people the left side of the brain is the leading (motor) side—the side of the so-called 'will,' and the right is the automatic (motor) side; . . . . but the right may be the *leading* side for perception—educated sensations.

In general terms the anterior portion of each hemisphere is more largely motor: while the posterior, inferentially, principally serves the sensory aspect.

The brochure is dedicated to Hitzig and Ferrier, whose experiments are repeatedly referred to. A delicate question of priority may be considered as being raised by the statement that the author, "for more than ten years, and before the experiments of Hitzig and Ferrier were made, held that convolutions contain nervous arrangements representing movements." The labors of these gentlemen, however, are mentioned in the highest terms, and declared to be of inestimable value for the furtherance of clinical medicine, comparative anatomy, and physiology.

One point of practical importance to medical writers is brought forward in the form of a suggestion or outline of the manner in which convulsions should be observed and described.

"After noting the part in which the fit begins, we have to observe how the spasm spreads (the 'march of the fit'), and this for two purposes. We have not only to learn *how much* of the body is involved in the spasm, but also to note the *order* in which the several parts involved are affected. For example, we have not only to report of a case that the spasm 'affected the whole of one side of the body,' but also that 'the spasm began in the hand, spread *up* the arm, next took the face, and then passed *down* the leg.' We have to note not only the range of a fit, but the *order* of development of movements, one after another, in that range. Or, speaking now of the nerve centres, we have to study convulsion not only to learn what particular movements are represented in a nervous centre (anatomical localization), but also to learn the particular order in which those movements are therein represented (physiological localization)."

Did space permit, a number of other interesting topics might be referred to, such as aphasia and the physiology of language, that we would gladly discuss; suffice it to say, that the name of the author may be accepted as sufficient guarantee for the quality and character of the work. F. W.

Art. XXXIII.—*A Course of Practical Histology: being an Introduction to the Use of the Microscope.* By Edward Albert Schäfer, Assistant Professor of Physiology in University College, London. 12mo. pp. 304. Philadelphia: Henry C. Lea, 1877.

This is a small octavo volume of about 300 pages, illustrated by engravings on wood, and is a very complete and thorough guide to the study of practical histology. The author shows himself to be entirely "au courant" with the latest additions to microscopic work, and the directions for preparing the different specimens are full and clear. The book contains an introductory, twenty-one chapters devoted to the study of the various normal tissues of the body, the two on the muscular and nervous tissues being especially good, and an appendix. On page 22 of the Introductory we notice directions for making a good logwood staining solution. In the chapter on the Blood, is figured an apparatus for maintaining a constant temperature under the microscope, and a very complete account is given of its application in the examination of the blood. A good point is made in referring to the action of water upon both white and red blood-corpuscles, and the advisability of dissolving what reagents are to be used either in salt solution or in fresh serum instead of water. Reference is also made to the action of chloroform vapour, and a figure of the apparatus for its conduction is given. This chapter is very complete. Throughout the book frequent reference is made to small practical points, which are very useful. Such, for instance, is the explanation of why iodized serum is used for examining epithelial tissues, and how to remove glycerine which has accidentally gotten upon the upper surface of the cover-glass. In the chapter on connective tissue, reference is made to the difficulty of securing a film delicate enough for observation, owing to the presence of bundles of white fibres, and to the consequent employment of the method of localized œdema by means of hypodermic injection of a salt solution. A good application is made of the silver method of von Recklinghausen in rendering distinct the pellucid intermediate substance of connective tissue, and an exceedingly clear account is given of the appearances obtained by this method when applied to the subcutaneous connective tissue of the limb of a rabbit, every step in which process is minutely detailed. In the next chapter is a good description of the gold method of coloring cell protoplasm as applied to cartilage, and a drawing is given of a warming apparatus for maintaining portions of tissue after treatment by the gold method at a constant, raised temperature. In the chapter on muscular tissue we meet with a brief but very clear consideration of the examination of muscular tissue by polarized light, the living muscle of the water-beetle being recommended for the purpose.

Chapter VIII. treats of the bloodvessels, and contains an excellent description of the process of imbedding various tissues and of the method of cutting thin sections. Here we have also a clear account of the method of injecting the bloodvessels as well as directions for the preparation of the injection mass, and the precautions to be employed in its use. In the chapter on the serous membranes is mentioned a plan for injecting the lymphatics of the diaphragm during life, which very often fails of success, as we know from experience; but when successful certainly gives very beautiful specimens. In speaking of the skin we are glad to see recommended the plan of hardening the specimen in the spirit and chromic acid mixture, the alcohol being an excellent preventive for the breaking off of the epidermis, which is apt to occur when the skin is hardened by chromic acid alone.

The author advises imbedding in cacao-butter for spongy tissues like the lung, as it is difficult to cut these sections unless the interstices of the tissue are filled rather firmly. The only objection to this is that the process of hardening takes a considerable time. Very full directions are given for preparing the nerves of the intestinal canal for examination, and also of large sections of the brain by Sankey's method, which we agree with the author in regarding as probably the most satisfactory one. The last two chapters are taken up with a description of the methods of preparing the different parts of the eye and ear for examination, and the appendix contains descriptions of some of the additional instruments employed in microscopy, among them a micro-photographic apparatus.

The value of the book lies in its very practical nature, and it can, therefore, be earnestly recommended as a useful guide in the elementary study of histology.

C. S. B.

Art. XXXIV.—*Illustrations of Clinical Surgery.* By Jonathan Hutchinson, F.R.C.S. Fasiculus VI. Plates XXII. to XXV. Folio, pp. 114–133. Philadelphia: Lindsay & Blakiston, 1877.

This portion of Mr. Hutchinson's work treats entirely of syphilis derived from vaccination, and contains a much larger proportion of reading matter than any of those which have preceded it.

The subject is one of great interest to physicians, and of enormous importance to the public at large, of which public, medical men form a considerable part. That vaccination, properly performed, is a most efficient protection against the ravages of smallpox, the experience of succeeding years, and the teachings of each recurring epidemic, are making more and more certain. Increasing observation but adds to the lustre which crowns Jenner as one of the greatest benefactors of his race. Yet the ingenuity of the mind is such, that this great boon to the human family finds arrayed against it a powerful and influential body of men, some among them men of intelligence and mental vigour in all other respects, who, forgetting the horrible ravages committed by variola, are ready to stand in the gap and do battle against a chimera. In Great Britain this opposition has even taken the form of an anti-vaccination league, and the cases of vaccino-syphilis so fearlessly recorded by Mr. Hutchinson were hailed by that body with applause, and used by it as the most powerful instrument at its disposal to pervert others to the adoption of its pernicious views.

That syphilis, and possibly any other thoroughly established constitutional disease, may be contracted by the medium of vaccination when the blood of the vaccinifer is mingled with the specific contents of the vaccine vesicle, there would appear to be no room for doubt in the face of Mr. Hutchinson's cases. These have been now several years before the profession. They were submitted to most searching criticism at the time of their occurrence, and have received corroborative proof of their correctness by a few other cases occurring in France and Italy. Yet the admission that such cases do sometimes occur, does not detract in the least from the value of vaccination, when we keep in mind the facts, that, among the countless myriads who have now undergone vaccination, and whose immunity from smallpox has been in consequence perfect, so small, so very small a number have contracted syphilis thereby. It were infinitely more reasonable to decline every operative procedure from fear of tetanus, than to cast discredit upon vaccination, and oppose its performance from dread of syphilitic infection. We take it that there is hardly an active drug in the materia medica which cannot be proved to have had injurious effects in as large a proportion of cases as the cases of vaccino-syphilis bears to the total number of vaccinations.

Mr. Hutchinson tells us that the publication of his cases was at first reprobated by some members of the profession, but we agree with him in thinking that it was certainly better to make a fearless statement of them, not only as the surest means of advancing the cause of science, but that the evil might appear in its true proportions, and not be allowed to assume a direful aspect under the mist of deception.

The plates in this part are good specimens of the lithographer's art. In the last one are represented degenerated vaccine scars unconnected with syphilis. Altogether this fasciculus sustains the reputation which its predecessors have established for the work. S. A.

ART. XXXV.—*Leprosy in India.* A Report by T. R. LEWIS, M.B., Surgeon British Medical Department, and D. D. CUNNINGHAM, M.B., Surgeon Indian Medical Department, Special Assistants to the Sanitary Commissioner with the Government of India. 8vo. pp. 73. Calcutta: Office of the Superintendent of Government Printing, 1877.

IT is only within a comparatively short time that the subject of leprosy has received the attention due such an important disease. Considering its wide-spread presence throughout Oriental and other countries, the great number of its victims, and its loathsome nature, it is indeed a malady calling for the closest investigation. The Leprosy Report of the Royal College of Physicians, London, made in 1867, under Government direction, brought together a large amount of valuable material, which must be regarded as the most reliable and complete information upon leprosy which we possess.

The report before us contains much that is of interest, and is notable for the concise and useful manner in which the subject-matter has been condensed by the authors, both of whom, we may add, are well-known workers in the field of Oriental diseases.

We learn that the total number of leprous persons in British India amounts to more than ninety-nine hundred thousand, or at the rate of fifty-four cases in every one hundred thousand of the whole population. These figures have been compiled from the census reports of 1872, which have just been issued; leprosy in these reports being classed as one of the "infirmities," the others being the insane, idiots, deaf-and-dumb, and the blind. Concerning the distribution of the disease in British India, we find that of the three Presidencies (Bengal, Madras, and Bombay), that of Bombay affords the largest number of lepers in proportion to the population, there being here eighty-five lepers to every one hundred thousand persons. The total population of this Presidency is over sixteen million of inhabitants, containing nearly fourteen thousand lepers. In the Bengal Presidency, which includes the city of Calcutta and the surrounding populous districts, the total population reaches the vast figures of one hundred and thirty-five million, and the lepers seventy-one thousand.

The authors classify the disease as met with in India under the two headings generally adopted by writers, the "anæsthetic" and "tubercular"—a classification based on the two most characteristic features of the disease. They also speak of what they think may conveniently be termed a "mixed" variety, where the anæsthetic and tubercular varieties are so equally present that it is impossible to classify them as being either the one or the other. The researches of the authors have enabled them to arrive at the conclusion that leprosy has existed in India for at least three thousand years. But comparatively little, however, was known concerning its localization in the various part of the country until the census reports of 1872 were published. The present report shows that one of the most severely afflicted leprosy districts is Kumaun, situated at the northern portion of India, at the base of the Himalaya Mountains, where a series of systematic observations regarding the disease were made. The town of Almora exists here, with a leper asylum containing on an average one hundred lepers, labouring under every form and stage of the malady, thus affording an exceptional opportunity for making a thorough study of the subject.

Looking into the geography and physical features of this country, we find it stated that no territory exhibits more extraordinary diversities of elevation, temperature, and climate than Kumaun. With the exception of the low marshy land along its southern part, it consists of a series of mountains, some of which are among the loftiest peaks in the world. Every degree of temperature is to be found, from the tropical heat of the valleys to an almost Arctic cold. The people are, as a class, exceedingly filthy in their habits, man and beast living in the same dwelling all the year round. But dirt in itself can by no means be regarded as sufficient to induce the disease, for we are informed that the Bhotias, a people inhabiting the northern parts of Kumaun, are even dirtier than the Kumaunees, and yet are practically free of leprosy. It is said that they never wash, "such an act being considered by them as one certain to be followed by some grievous misfortune." Concerning the diet of the Kumaunees, a most important point, it seems to us, in the consideration of the subject of the etiology of the disease, the authors give us no information. This is a topic which we shall hope to see taken up and dealt with exhaustively in some future report by these observers. To what extent the well-known fish diet called "Ngapé," which has been described as "a paste of mashed and pickled fish, resembling very rank shrimp-paste," is consumed by this people we are not told. Colonel Yule states in his "Mission to the Court of Ava," in 1854, that putrescent fish in some shape or other is a characteristic article of diet of all the Indo-Chinese races. We doubt whether their habits and mode of living have improved much since this period.

We now come to that portion of the report which treats specially of the disease as it was observed at the Almora Leper Asylum. Among the eighty inmates who were present at the time of the investigation, all forms of leprosy were encountered. In forty-nine cases the anæsthetic phenomena formed the prominent symptoms; in twelve the tubercular element prevailed; in four the eruption appeared to be the most conspicuous feature; while in the remaining fifteen the anæsthetic and tubercular symptoms were so closely and equally associated as to entitle them to be termed of the "mixed" variety. The anæsthetic cases were almost without exception comparatively pure examples of this variety of the disease. On the other hand, the advanced tubercular cases were always associated with more or less anæsthesia. A careful examination of all the patients of the asylum appears to have been made, together with an analysis of the cases showing the distribution of the anæsthesia, the presence or absence of pain, the condition of the skin and glands, the character of the ulcers, the loss of digits and distortions, and the voice. The age of the patients was found to range from seventeen to sixty-three. The earliest date of attack was eight years, and the latest sixty.

Concerning the tubercular variety it was noticed that in all cases the face and ears were the seat of the deposit. In two cases the tongue was greatly invaded, and in many others it was more or less affected. In five cases the tubercular infiltration was confined to the face and ears, while in the rest other regions were more or less involved. The form of the deposit in the skin varied considerably, being present either diffused over large areas of surface, causing general thickening, or, on the other hand, as sharply defined, isolated, prominent tubercles and nodules. The voice was affected in the large proportion of ten out of the twelve cases, due to the tubercular formation about the larynx.

The question as to the contagion of leprosy next presents itself. This subject, which we thought had long since been definitely settled in the negative, has been recently revived by several European dermatologists. Careful inquiry was made by Drs. Lewis and Cunningham for evidence bearing on this point. The result of this examination, which, judging from the tables, seems to have been conducted very thoroughly, shows that "no facts were ascertained in the history of the lepers favouring a belief in the contagious nature of the disease." Nor did the history of the asylum furnish any other evidence in favour of contagion, there having been no proof of any of the attendants or others connected with the institution having contracted the disease in the discharge of their duties.

Some very interesting observations were made by the authors upon the heredity of the disease, from which we learn that of the eighty lepers in the asylum, twenty-eight (or thirty-five per cent.) had one or more leprous relatives. This percentage is strikingly large, and demonstrates forcibly what a very decided influence heredity exerts in its perpetuation.

We have thus called attention briefly to the more important points as they have occurred to us in looking over this valuable report. In the form of a continuation of the present volume, we are promised certain investigations upon the pathology of the disease, which we shall look forward to with much interest. The present report contains several well-executed maps, showing the geographical distribution of leprosy, and the exact extent to which it prevails in the several districts of India. Four lithographic illustrations, drawn from photographs, show typical examples of the anaesthetic and tubercular forms of the disease, the latter of which particularly affords a quite satisfactory representation of the deformity attending this variety of leprosy. L. A. D.

ART. XXXVI.—*The "Oriental Sore," as observed in India.* A Report by T. R. LEWIS, M.B., Surgeon British Medical Department, and D. D. CUNNINGHAM, M.B., Surgeon Indian Medical Department, Special Assistants to the Sanitary Commissioner with the Government of India. 8vo. pp. 59. Calcutta: Office of the Superintendent of Government Printing, 1877.

THE subject of "Oriental sore" has of late acquired considerable interest to Europeans and others, through the investigations of Geber, published a few years ago in the *Vierteljahresschrift für Dermatologie und Syphilis*, and of Drs. Fox and Farquhar, the result of whose studies appeared in a work entitled "Skin Diseases of India." It has been but a short time since we had the pleasure of calling attention to this latter volume, in which was contained an important contribution to "Oriental sore," the subject of the report before us. The existence of a disease, characterized by a peculiar sore or ulcer, together with a train of well-known clinical features, and designated by various names, according to the country in which it occurred, has long been considered as established. Thus we have the "Delhi sore," "Delhi boil," "Delhi ulcer," "Scinde boil," and the *boutons* of Aleppo, Biskra, Bagdad, Crete, etc. The nature of these lesions, and their relation to one another and to well known similar cutaneous manifestations common to Europe, as, for example, scrofuloderma and lupus vulgaris, has been a topic of much discussion for some years past, some observers contending that the several affections are distinct, others that they are but variations in type of one and the same process. The conclusions arrived at by Dr. Geber, a Viennese dermatologist of repute, who made a sojourn at Aleppo for the purpose of investigating the nature of the "Aleppo bouton," were to the effect that several distinct kinds of disease are included under the one name, which properly should be regarded as lupus, scrofuloderma and syphiloderma.

The investigations conducted by Drs. Fox and Farquhar went to show that Delhi boil, Aleppo boil, bouton or evil, and Biskra bouton, were essentially one and the same disease, although but little light was thrown upon the intimate nature of the disease.

The studies of Drs. Lewis and Cunningham upon the Oriental sore were made at Delhi, at which place, it is said, the disease presents its most typical features. It commences generally as a pinkish papule, not unlike a mosquito-bite, and may retain this aspect for days or weeks, or may become distinctly tubercular or nodular.

In all cases the skin becomes thin and somewhat glistening, and the vascularity of the tissues beneath more marked. It usually assumes one of the two following courses: Either the central portion of the papule desquamates, or a secretion takes place which forms a yellowish, hard, adherent crust, beneath which a more or less raised red, raw surface, resembling a boil or carbuncle, is found, which may or may not bleed, but is seldom painful. The lesions, which may be either single or multiple, vary in extent from a few lines to one or even two inches in diameter, averaging about the size of a quarter dollar. They are not localized to any particular region, but are often found upon the forehead, the cheeks, wrists, and backs of hands and feet. The disease may occur at any age, and pursues a more or less chronic course, lasting upon an average six or eight months. The lesions are followed by a permanent pinkish-white or pale-yellow scar.

Considerable attention has been bestowed by the authors upon the pathology of the affection. This portion of the report is of particular interest, for it is the only contribution of the kind with which we are acquainted. We learn that the growth consists of "granular lymphoid cells" containing one or more nuclei. These cells are imbedded loosely in a "cement-substance," or stroma, which is not readily detected in fresh preparations, but becomes firmer and less translucent by the action of preservative media. The cells vary in appearance from "mere irregular lumps of plasma to well-formed lymphoid cells, in such intimate relation with which, as almost to be suggestive of organic connection, are spindle-shaped and epidermoid cells in various grades of transition." The cells are frequently found arranged linearly: are aggregated into groups of various sizes; and are noted to be in intimate relation with the adventitia of the vascular tissues, especially with those of the lymphatics of the corium. From their examinations the authors are of the opinion "that the microscopical changes which characterize the 'sores' ordinarily met with at Delhi, and which are considered endemic to this and other localities, differ in no material manner from the changes which have been described as taking place in the various forms of lupus in Europe." They are, moreover, of the view that the clinical features of the disease closely resemble those of lupus, and that the affections (lupus and 'Oriental sore') "may be looked upon as essentially the same." Upon the question of the identity of these diseases we feel disposed to express some doubt, for the description of the Oriental sore, as given by the authors, does not, to our mind, correspond with the clinical history of lupus vulgaris as encountered in Europe and in this country. The chromo-lithograph representing a typical "Delhi sore," which accompanies the paper, does not certainly convey the idea of the lupus lesion. Compared, for example, with the plates of Hebra's Atlas of Skin Diseases which illustrate lupus vulgaris in its ulcerative stage, one would scarcely be willing to concede that the two pictures represented the same disease. Nor does it seem to us that the pathological structure of the growth is the same as that met with in lupus vulgaris. A similarity in the appearance of the sections before us to sections of lupus with which we are familiar undoubtedly exists, but that this is so marked as to warrant the conclusion arrived at by the authors, that they are essentially one and the same disease, we think cannot be accepted without further investigation and microscopical research. With all deference for the labours of the authors, which have manifestly been conducted with care and in a thoroughly scientific spirit, and therefore entitled to full consideration, it appears to us that, viewing the subject in the light of their researches, the diseases cannot be regarded as one and the same process.

The treatment which has proved of most value is that which is generally recommended for lupus vulgaris. In conclusion, in place of the term "Oriental sore," the authors suggest that of *lupus endemicus*. L. A. D.

ART. XXXVII.—*Atlas of Skin Diseases.* By LOUIS A. DUHRING, M.D., Professor of Skin Diseases in the Hospital of the University of Pennsylvania; Physician to the Dispensary for Skin Diseases, Philadelphia, etc. Part II. Philadelphia: J. B. Lippincott & Co., 1877.

THE second part of Dr. Duhring's Atlas may, so far as the plates are concerned, be considered an improvement upon the first number, and the delay in its issue receives a most satisfactory explanation in this perfection. The text, which accompanies them, is, as before, descriptive both of the individual case and of the disease typified, and, with the directions for treatment, forms a clear, concise, and practical guide to the study of the more common cutaneous affections. The first plate exhibits most effectively the striking and varied lesions of rosaceous acne, the author wisely abstaining in his selection from the startling pictorial effects, which exceptional cases of the disease might warrant. The second plate represents the leg of a patient with ichthyosis, and is an admirable counterfeit of a difficult subject. The patient was of a family of seven children, the three youngest of whom were affected by the disease. The third plate, tinea versicolor, is, perhaps, as successful a picture of this affection as can be made. It shows remarkably well the peculiar tint and configuration of the patches of fungus growth, but just fails to depict the minute surface changes which characterize them. In his directions for treatment we should say the author did not sufficiently insist upon a prolonged and uninterrupted use of parasiticides. If he were more particular on this point, the relapses, which he states are "common," would undoubtedly be less so. The disease may be as effectually and radically cured as scabies, only it takes a much longer time to do it. The last plate, sycosis non-parasitica, is a master-piece. The most minute features of this terribly obstinate affection of the bearded face are here repeated with the utmost fidelity in drawing and colouring, and the student by its aid should be able to make as careful a study of the disease as if he had the patient before him.

The author and artists are to be congratulated upon the eminent success they have attained in their work. J. C. W.

ART. XXXVIII.—*Annual Report of the Supervising Surgeon-General of the Marine-Hospital Service of the United States, for the fiscal year* 1875. By JOHN M. WOODWORTH, M.D. 8vo. pp. 229. Washington: Government Printing-Office, 1876.

FROM the point of view of the patriot or the political economist, the aims and objects of the Marine-Hospital Service are of the highest importance. Perhaps, however, the full grandeur of its achievements, actual and potential, can be grasped only by the intelligent and broad-minded physician. Certainly his professional brethren, beyond all others, should be quick to perceive and eager to commend the zeal, devotion, and intelligence with which the supervising surgeon has conceived and striven to realize the functions possible and desirable in this service. And when we mention that no legislation exists, providing for an examination into the professional qualifications of candidates for marine-hospital positions, readers will readily imagine the difficulties met in preventing improper appointments from political motives. Since 1873, it is true, examinations by a competent board have been provided for through a regulation of the service. But this arrangement, we presume, depends on the good pleasure of the reigning secretary. Most of the money expended is of the nature of a trust-fund, being derived from small taxes upon the wages of American sailors. Fair dealing, as well as sound policy, forbids any consideration but that of the seaman's welfare in the administration of the trust. We hope that the legislation so earnestly desired by Dr. Woodworth may be soon had. That jobbery and corruption have entered into some directions of expenditure in the past, is but too evident when we read of costly edifices requiring in fifteen years one-third to one-half their first cost in repairs, and then being so unfit for their purpose that further outlay is not advised; and of wards that cannot be kept habitably warm in winter, and of cess-pools in cellars, and of "nearly all the doors" needing "piecing" after two years' shrinkage.

The prevention of disease among seamen continues to be a favourite theme of thought with Dr. Woodworth, as a practicable and most important field of action for the service. Not only is the sailor a most active carrier of disease, by reason of his roving life, but upon his health and vigour in hours of supreme trial depend human lives and untold riches. Unseaworthy sailors, as well as unseaworthy ships, he thinks should not be allowed to sail. A regular system of medical inspection upon men offering for shipping, is suggested as an eminently fit and useful work for this service.

Medicine-chests ordinarily provided for vessels are criticized as behind the times, and as especially defective in the directions for use which accompany them. The preparation of a proper guide is suggested as a legitimate work, chargeable upon hospital funds. Hygiene on board ship, the rules and methods of hospital relief, and directions for disinfecting ships are advised to be here included.

A national supervision of quarantine is recommended on account of the diverse and sometimes objectionable local regulations.

From brief comments upon the extensive tabular presentation of facts we learn several interesting particulars. The winter (1874–5) having been unusually severe, the cases of frost-bite were four times as numerous as in the previous year. Venereal disease causes twenty per cent. of the hospital admissions. Cases of scurvy were only one-half as numerous as in previous years—twenty-five cases in some 13,000 patients. These occurred mostly in ships arriving at San Francisco after the long voyage round Cape Horn.

Three papers describe the epidemic prevalence of yellow fever, under the recent observation of the writers. The views expressed are quite dissimilar. One attributes the disease to local conditions solely. He believes that "germs have nothing to do with the disease, and that it is absolutely non-contagious and non-infectious in the sense that smallpox is contagious and typhus is infectious." His cases were at Key West; and the local conditions and mode of spreading of the disease certainly appear to favour his opinion. Another reporter attributes an epidemic to germs from an infected ship, borne to the shore by the winds or by men. Diagnosis, in the first, was often hopelessly confused with "pernicious" and "bilious" fever; and, in the third, with "break-bone fever." The reporter from New Orleans has the strongest impression in favour of the efficacy of the method of isolating disinfection (described in this Journal, April, 1877, p. 513) by carbolic acid sprinkling. Another believes no known method is effective in ships that have had many cases on board.

An elaborate and important paper, by Surgeon P. H. Bailhache, is designed to inform the service concerning the latest views and discoveries as to the duality of the syphilitic virus, or, as he puts it, the difference between syphilis and chancroid. The nature and best treatment of both affections are very clearly stated. A very cogent and forcible argument is presented for the right and duty of governmental action to limit the diffusion of syphilis. Governments enforce rigid quarantine against cholera, smallpox, and yellow fever; but allow a worse plague than either to spread wholly uncontrolled. Here, again, we find urged the need of inspection of crews, before departure on a voyage, to prevent men from shipping who are likely soon to be disabled and a source of danger to all concerned. Medical inspection of incoming crews, added to the above as suggested, with the authority to detain all infected men in hospital, would certainly be a step towards the checking of this frightful disease. The writer adds, however, a proposition to *arrest and confine for treatment all persons who continue to spread contagion.* We believe for a beginning, however, the latter step would more prudently be omitted. Legislation can never lead, but must follow, public opinion. To inform and educate that opinion is one of the highest functions of our profession. But at present, the last-named suggestion of our writer would be, like prohibitory liquor laws, unsupported by the people; and the law, therefore, would either become nugatory, or be promptly repealed as a tyrannical invasion of private liberties. We do believe, however, that a medical inspection of men offering for shipment, with power at least to reject those likely to spread contagion, or to become disabled from any malady, and also with power to quarantine syphilitic sailors arriving at our ports, would be supported by the public, as now enlightened. A small gain, thoroughly supported, is worth a dozen millennial reforms for which the times are unripe. It should not be impossible, by sacrifice of a false delicacy, gradually to prepare the popular mind for stronger measures against a disease which fatally poisons the very springs of life. Once let the people know that the most frightful results may follow—and have followed—a friendly hand-shake or kiss, the use of a towel, glass, or bed, and they will soon support legislation which now would be decried and execrated. This subject is one of tremendous importance; and the sooner every man and woman recognizes the fact, the better for unborn generations, for our country, and for the world.

Treating of consumption as found among seafaring men, Surgeon A. C. Hamlin makes the point that poor food, and the filth, moisture, and bad air of the forecastle are responsible for any excess of this malady that may obtain.

Scurvy, according to Surgeon C. N. Ellinwood, is due to the same causes, and should be entirely prevented. Too much stress has evidently been laid in the past upon diet, which, though the chief, is not the only factor.

Upon the work of the life-saving service, as here briefly described, no American can look without pride and pleasure. Of 2583 lives imperilled under its oversight, but 19 were lost, and of these 14 were in that frightful wreck of the Italian barque "Giovanni" on Cape Cod, which stranded beyond reach of the line-throwing mortars, in a sea impassable by life-boats. To medical readers, the extraordinary facts that of 728 men engaged in active service but two died from disease, and *not one lost his life on duty*, may, besides bearing evidence to the excellence of appliances and management, seem also to have some connection with the rigid physical examination through which only the men are accepted. As here hinted, similar care in selecting crews might have prevented some of the wrecks so nobly succoured.

Both Dr. Woodworth and Surgeon Thos. J. Griffiths are of the opinion that the use of setons has been too much neglected of late. Cases of paralysis and epilepsy benefited by their use, are presented by the latter. The reports are too brief and imperfect to serve any other than a suggestive purpose. This paper confirms, however, a remark before made by Surgeon Woodworth as to the prevalence of paralytic attacks among firemen on board steamships.

Useful papers upon scurvy, and upon ships' medicine chests, have had their general tenor indicated in our comments on the Supervising Surgeon-General's introductory remarks.

collected together and arranged the alkalies, acids, oxides, and alkaloids in separate groups for the purpose of easy reference, with a description of their microscopical appearances, and the effect of polarized light upon them.

The chapter on the microscope in biology is too brief to be of much service in the study of what is probably the most important branch of pure microscopical science.

That on the microscope in vegetable histology and botany is better, but we confess we do not see the use of giving within the narrow compass of a single chapter a list of the various orders of Fungi or of the Algæ, which may be found in any work on botany; and regard as a positive waste of important space the including of nine pages of analysis of the tribes and genera of Diatoms, taken from the Micrographic Dictionary.

The same objection may be urged against the next chapter on the microscope in zoology; there is not sufficient space given to the purely microscopic appearances of the lower orders of life. The section on insects is, however, a good one for one so brief.

The next two chapters are the concluding ones, and are the most important in the work, being devoted to animal histology and the microscope in pathology and medicine. These are the best in the book, and are sufficiently full. The discussion of the study of embryology, including the directions for preparing sections of the embryo is fairly good. We object, however, to the use of the words "hind brain" for posterior part of the brain, and deprecate the awkward expression "splanchnolepure folds."

In speaking of new formations, we think that the author errs in dividing tumours histologically into histoid and carcinomatous, which, to say the least, is a very doubtful division of a subject in our knowledge of which we are as yet far from perfect.

A glossary is appended, giving in clear, brief terms a definition of the various scientific terms used throughout the book. The index is a good one, and has been made with some care.

This work will not take the place of works of the class of "Beale on the Microscope," but may be of considerable service as a compendium of microscopical science, in which field lies its chief value. C. S. B.

Art. XLI.—*Transactions of State Medical Societies.*

1. *Transactions of the Nebraska State Medical Society. Sixth, Seventh, and Eighth Annual Meetings.* 1874 to 1876. pp. 221. Lincoln, Neb., 1877.
2. *Transactions of the Kansas Medical Society*, May, 1876. pp. 67. Topeka, Kansas, 1877.
3. *Transactions of the Michigan State Medical Society*, May, 1876. pp. 363 to 497. Lansing, Mich., 1876.
4. *Transactions of the Vermont Medical Society*, for 1874, 5, and 6. pp. 397 to 562.

1. The triennial publication of the *Nebraska* Society contains a feature which we have not before noticed in works of its class. It consists of analytical sketches of the contents of "Transactions" issued by similar societies in other States. Obviously useful as these may be to the Fellows, they as obviously require no reference from us in this place. We incline to the opinion that they are better

against cholera, smallpox, and yellow fever; but allow a worse plague than either to spread wholly uncontrolled. Here, again, we find urged the need of inspection of crews, before departure on a voyage, to prevent men from shipping who are likely soon to be disabled and a source of danger to all concerned. Medical inspection of incoming crews, added to the above as suggested, with the authority to detain all infected men in hospital, would certainly be a step towards the checking of this frightful disease. The writer adds, however, a proposition to *arrest and confine for treatment all persons who continue to spread contagion.* We believe for a beginning, however, the latter step would more prudently be omitted. Legislation can never lead, but must follow, public opinion. To inform and educate that opinion is one of the highest functions of our profession. But at present, the last-named suggestion of our writer would be, like prohibitory liquor laws, unsupported by the people; and the law, therefore, would either become nugatory, or be promptly repealed as a tyrannical invasion of private liberties. We do believe, however, that a medical inspection of men offering for shipment, with power at least to reject those likely to spread contagion, or to become disabled from any malady, and also with power to quarantine syphilitic sailors arriving at our ports, would be supported by the public, as now enlightened. A small gain, thoroughly supported, is worth a dozen millennial reforms for which the times are unripe. It should not be impossible, by sacrifice of a false delicacy, gradually to prepare the popular mind for stronger measures against a disease which fatally poisons the very springs of life. Once let the people know that the most frightful results may follow—and have followed—a friendly hand-shake or kiss, the use of a towel, glass, or bed, and they will soon support legislation which now would be decried and execrated. This subject is one of tremendous importance; and the sooner every man and woman recognizes the fact, the better for unborn generations, for our country, and for the world.

Treating of consumption as found among seafaring men, Surgeon A. C. Hamlin makes the point that poor food, and the filth, moisture, and bad air of the forecastle are responsible for any excess of this malady that may obtain.

Scurvy, according to Surgeon C. N. Ellinwood, is due to the same causes, and should be entirely prevented. Too much stress has evidently been laid in the past upon diet, which, though the chief, is not the only factor.

Upon the work of the life-saving service, as here briefly described, no American can look without pride and pleasure. Of 2583 lives imperilled under its oversight, but 19 were lost, and of these 14 were in that frightful wreck of the Italian barque "Giovanni" on Cape Cod, which stranded beyond reach of the line-throwing mortars, in a sea impassable by life-boats. To medical readers, the extraordinary facts that of 728 men engaged in active service but two died from disease, and *not one lost his life on duty*, may, besides bearing evidence to the excellence of appliances and management, seem also to have some connection with the rigid physical examination through which only the men are accepted. As here hinted, similar care in selecting crews might have prevented some of the wrecks so nobly succoured.

Both Dr. Woodworth and Surgeon Thos. J. Griffiths are of the opinion that the use of setons has been too much neglected of late. Cases of paralysis and epilepsy benefited by their use, are presented by the latter. The reports are too brief and imperfect to serve any other than a suggestive purpose. This paper confirms, however, a remark before made by Surgeon Woodworth as to the prevalence of paralytic attacks among firemen on board steamships.

Useful papers upon scurvy, and upon ships' medicine chests, have had their general tenor indicated in our comments on the Supervising Surgeon-General's introductory remarks.

collected together and arranged the alkalies, acids, oxides, and alkaloids in separate groups for the purpose of easy reference, with a description of their microscopical appearances, and the effect of polarized light upon them.

The chapter on the microscope in biology is too brief to be of much service in the study of what is probably the most important branch of pure microscopical science.

That on the microscope in vegetable histology and botany is better, but we confess we do not see the use of giving within the narrow compass of a single chapter a list of the various orders of Fungi or of the Algæ, which may be found in any work on botany; and regard as a positive waste of important space the including of nine pages of analysis of the tribes and genera of Diatoms, taken from the Micrographic Dictionary.

The same objection may be urged against the next chapter on the microscope in zoology; there is not sufficient space given to the purely microscopic appearances of the lower orders of life. The section on insects is, however, a good one for one so brief.

The next two chapters are the concluding ones, and are the most important in the work, being devoted to animal histology and the microscope in pathology and medicine. These are the best in the book, and are sufficiently full. The discussion of the study of embryology, including the directions for preparing sections of the embryo is fairly good. We object, however, to the use of the words "hind brain" for posterior part of the brain, and deprecate the awkward expression "splanchnolepure folds."

In speaking of new formations, we think that the author errs in dividing tumours histologically into histoid and carcinomatous, which, to say the least, is a very doubtful division of a subject in our knowledge of which we are as yet far from perfect.

A glossary is appended, giving in clear, brief terms a definition of the various scientific terms used throughout the book. The index is a good one, and has been made with some care.

This work will not take the place of works of the class of "Beale on the Microscope," but may be of considerable service as a compendium of microscopical science, in which field lies its chief value. C. S. B.

ART. XLI.—*Transactions of State Medical Societies.*

1. *Transactions of the Nebraska State Medical Society. Sixth, Seventh, and Eighth Annual Meetings.* 1874 to 1876. pp. 221. Lincoln, Neb., 1877.
2. *Transactions of the Kansas Medical Society*, May, 1876. pp. 67. Topeka, Kansas, 1877.
3. *Transactions of the Michigan State Medical Society*, May, 1876. pp. 363 to 497. Lansing, Mich., 1876.
4. *Transactions of the Vermont Medical Society*, for 1874, 5, and 6. pp. 397 to 562.

1. THE triennial publication of the *Nebraska* Society contains a feature which we have not before noticed in works of its class. It consists of analytical sketches of the contents of "Transactions" issued by similar societies in other States. Obviously useful as these may be to the Fellows, they as obviously require no reference from us in this place. We incline to the opinion that they are better

worth printing than many articles of more pretension to originality which the hapless committees often feel obliged to publish in such works.

Dr. George Tilden reports a case of stricture of the ascending colon at its hepatic flexure. Symptoms of chronic gastritis, chronic hepatitis, with constipation and multiform dyspeptic troubles, had existed for some three years. At the autopsy the stricture was found nearly occlusive, with evidence of active inflammation. The bowel below the stricture (physiologically above) was enormously distended. So, too, was the small intestine, which presented signs of high inflammatory action. Death was preceded by symptoms similar to those of strangulated hernia.

Vomiting of "bright red blood" by a fine hearty boy four hours old, is reported by Dr. L. H. Robbins. The child's clothes were saturated "from the neck to the lower part of the body," besides quite a large space on the bedding. No cause or explanation was perceived in the condition of child or mother. A little paleness and coldness of extremities was the only deviation from health noticed in the child, which afterwards thrived admirably.

A moving narrative concerning a peculiarly gifted family is contributed by Dr. Bonesteele. A woman five months gone, after a few hours of distressing vomiting and diarrhœa, was attacked with terrible convulsions. A quart of blood was taken. Labour-pains now soon commenced. In a couple of hours the spasms reappeared, with bleeding from nose and ears. Thirty ounces of blood were removed by venesection, and delivery was accomplished. After a few hours of quiet, vomiting again occurred, with the result of expelling four lumbrici, from thirteen inches upward in length. Convulsions returning, turpentine and castor oil were given. Free evacuations appeared, but the patient lay senseless, livid, cold, and bleeding as before. Convulsions continued, passing into profound coma, lasting six days. During this latter period, calomel and jalap procured, daily, large feculent passages "literally alive with worms." ["Some seventeen large ascaris lumbricoides had now passed;" query, numerous smaller ones?] Coma gradually passed off. During convalescence, ten more "large, round" worms were discharged. Soon after recovery, the husband was ailing, and, upon appropriate treatment, passed four large round worms. Not unnaturally suspicious of the progeny of such parents, similar treatment was extended to the children, and "they all passed worms." The number of children is not noted, but of worms sixty large round ones were procured from the whole family. For the sanitary reputation of Nebraska, we should add that all parties were recently arrived from an older State.

A case in which gunshot wound of the left middle lobe of the brain was followed by total inability to call persons and things by their names, is reported by Dr. Hershey. The anterior lobe is said to have been implicated, but the description is not a clear one. Articulation was distinct; no hemiplegia appeared, and the mind was clear during the brief hours between the insensibility immediately attending the wound and the fatal coma that supervened.

Dr. Von Mansfelde, in a somewhat elaborate paper concerning conception, maintains, with other propositions, that a fecundated ovum attaches itself to the uterine surface only at a period a few days anterior to the next menstrual period.

2. The *Kansas* publication possesses that somewhat rare attraction, an opening address which is both brief and sensible, from its president, Dr. Sinks.

Attempts which have been made to collect medical evidence and opinion by circular letters, indicate a general impression that typical typhoid fever is a rare disease. Malarial fevers, however, with their sequels, are commonly reported. Dr. Stuart, who collates the correspondence, refers to the unsatisfactory condition of medical knowledge as to the disease or diseases to which the name typho-malarial fever is applied. The term seems to be much used in Kansas, sometimes as synonymous with bilious remittent. As affecting the origin or development of consumption, and its cure if not advanced, the opinion seems general that the dry soil and air of the State exert a sanative influence.

In a paper on hydrophobia, Dr. Roberts discredits the popular idea that the bite of the common skunk is especially liable to produce fatal results. That single animals may have been bitten by rabid dogs or wolves, and thus have contracted the disease and the power to communicate it, is thought not unlikely. Indeed Dr. Roberts has collected some seventeen cases in men, where hydrophobia followed skunk-bite, and ten more where no harm followed. All cases but one of the dreadful disease from this source occurred in a limited area, where, too, wolves have been known to exhibit the signs of madness.

Dr. S. S. Todd reports a case of ovariotomy presenting some rather noteworthy points. Menstruation had been pretty regular, as to period, and the operation was done seventeen days after cessation of a flow. The function was again performed on the fourth day after the operation. The "spleen and other abdominal viscera" are reported to have been "found to be healthy." The tumour, found to be many-cysted, appears to have been removed through an incision of seven inches in length, after being emptied of its fluids to the amount of thirty-eight pounds. Total weight is stated at forty-two pounds. A drainage-tube was placed in the wound, which elsewhere was closed with silver sutures. For ten days the cavity was washed out twice daily with a weak solution of carbolic acid and salt. The tube was removed on the twelfth day, with the last of the ligatures. On the nineteenth day perforation of the rectum was diagnosticated. For three or four weeks there continued to escape at intervals pus from the anus and gases from the unclosed portion of wound. On no day after the fifth day, till the close of the sixth week, did the temperature fall below 100° or the pulse below 110. The averages from the fifth day to the forty-second were: pulse 122, and the 6 P. M. temperature $102\frac{1}{6}$°. Yet nausea lasted only three or four days, ceasing then on suspending opium. Food was relished on the fourth day. From the fourth to the twelfth day five grains each of quinine and salicylic acid were given thrice daily. A decided fall in temperature always followed each dose, and a similar effect often followed the washing of the cavity. The cure became complete, after removal home on the fifty-first day.

Several brief papers and valuable cases make up this neat, unpretentious, and carefully prepared pamphlet.

3. A very interesting and suggestive paper in the *Michigan* Transactions is that of Dr. E. P. Christian upon fœtal abnormities, etc. Some dozen cases from his own experience are described, very briefly, and are employed as text for some ingenious and philosophical speculations upon the laws of nutrition and development.

Dr. Brodie's Presidential Address directs the minds of his hearers to the important topics of the time, as viewed from a medical stand-point.

We are glad to see the dangers of chloroform and the safety of ether, as anæsthetics, set before the Michigan profession by Dr. Wade. With an inhaler of his own invention he produces anæsthesia at an expense of only one ounce of ether on the average. Nausea is rarely produced.

Dr. Parmenter notes the occurrence in his practice of cases of continued fever not exhibiting the characters of typhoid. More than twenty such have been met with in half a dozen years. Three deaths occurred. A slight dry cough was always present in the first stages.

4. Apart from the minutes of the three meetings, the *Vermont* publication is almost entirely made up of essays compiled from standard authorities and eminent investigators. Dr. Dunsmore, however, presents a paper in which he contends against the too great weight recently given to the "dirt theory" in accounting for typhoid fever. He certainly convicts some of its advocates of bad logic and unfounded inferences. His own style, however, is so careless that in some places it is difficult to follow his thought.

Dr. Janes writes briefly in favour of amputation at the knee-joint, preserving the patella and the condyles of the femur. B. L. R.

ART. XLII.—*Die Kriegs-Chirurgie der letzten* 150 *Jahre in Preussen. Rede gehalten zur Feier des Stiftungstages der militärärztlichen Bildungs-Anstalten am* 2 *August*, 1876. Von Dr. E. GURLT, Professor der Chirurgie an der König Friedrich Wilhelms Universität zu Berlin.

Military Surgery during the past 150 *years in Prussia; Oration delivered on the Anniversary of the Military Medical School on the 2d of August*, 1876, by Dr. E. GURLT, Professor of Surgery, etc.

THE nature of the pamphlet before us is such as to preclude the possibility of giving an abstract of its contents without copious quotations, and we must, therefore, limit ourselves to referring to a few salient points in this truly meritorious production.

The orator has traced, in a most graphic style, the development of military surgery through the numerous campaigns, beginning with the year 1713. He has pointed out the character, the labours and trials, the rank and pay of the army surgeon, the notable improvements in army medical matters and educational institutions. We are informed that the germs of the present medical school were planted by King Friedrich Wilhelm I. in 1713, in establishing the Theatrum Anatomicum, principally devoted to the teaching of anatomy. In 1724 lectures on medicine, surgery, botany, and chemistry, were added; and thus the Collegium Medico-Chirurgicum, for the training of medico-surgeons for the country and the army, established. This institution is the predecessor of what is to-day known as the "Friedrich Wilhems Universität." In 1727 the Charité Hospital at Berlin was founded, and assisted materially in the training of military surgeons. As early as 1725, through the efforts of Dr. Joh. Theod Eller, a law was enacted requiring all physicians and surgeons, in order to practise their profession in Prussia, to pass the State Examining Board. In spite of these conditions, we are told that they were insufficient to secure a well-educated corps of army surgeons, and that by far the largest number had to be recruited from the barber-shops; and that owing to the then existing difference in education between physicians and surgeons, the latter occupied a very subordinate position both in the army and in society. It is, therefore, surprising how some of these ex-barbers advanced in the respective grades, and attained finally the highest position in the Army Medical Department. Frederick the Great apparently sought to elevate the tone of the Prussian Medical Corps by sending a number of surgeons to France for the purpose of enlarging their experience and knowledge, and by inviting to Prussia a number of French surgeons for the purpose of teaching and demonstrating the art of military surgery.

Prof. Gurlt dwells especially upon the hospital system, methods of treatment, and means of transportation of the sick and wounded during the "Seven Years' War," and refers to the three great men of that period, viz., Schmucker, Bilguer, and Theden, who as First, Second, and Third Surgeon-General, had charge of the medical affairs of the separate armies. These three men are known for their writings, which contain many valuable and interesting observations to which the orator frequently refers. Bilguer is known as an extremely zealous advocate of conservative surgery, but his remarks on typhus and dysentery, as observed in the Bavarian campaign of 1778, are not without interest. He attributes many of the deaths to the miserable fare and care of the artillery-men; refers to the fact that patients treated in provisional frame hospitals, with plenty of light and ventilation as obtained through numerous small holes in the walls, were more successfully treated than others in permanent, but ill-adapted houses. We also like the remark when he says: "Brocklesby is perfectly right when he insists that a physician or surgeon in charge of a hospital should have as much power there as a commanding general in the field."

Theden is especially known as the originator of the present system of bandaging the limbs from below upwards, for his elastic catheter, evaporating lotions, and successful attempts to substitute local compression for ligation of arteries in ablation of limbs. His experience in the use of cold water in surgical affections is also of importance. He was taught the use of this simple but powerful agent as early as 1742 by Drs. Sigmund Hahn and son, who were educated physicians, and not hydropaths in the present acceptance of the term. Theden says: "I owe it to Dr. Hahn, that I have succeeded, in spite of the hypotheses of the old and new practitioners, to disperse. by means of cold water, dangerous inflammations, and to have found it a useful remedy in many internal affections." He describes the use of water in typhus and acute mania, and speaks of excellent results. Mursinnan and his writings are next referred to.

In 1797, after the death of Theden, Johan Goercke succeeded him as the Chief of the Medical Bureau. When yet a subordinate, he submitted, in 1793, plans for the establishment of Flying Hospitals for 1000 wounded each, which were speedily approved and adopted. He also introduced, in 1795, after the English pattern, improved spring wagons for the transportation of wounded, and is favourably known as a teacher of the Military Medical School. Under his administration extensive barrack hospitals were erected, and water transportation for the sick and wounded largely resorted to.

During the period from 1812–1815, numerous societies for the relief of sick and wounded, and the system of volunteer nurses developed throughout Germany. On the recommendation of Goercke, orders were issued providing for the formation of companies, 150 men for each brigade, for the purpose of carrying the wounded to the field hospital. Owing doubtless to the exigencies of the service, this order was not carried into effect until 1854; and ten years later, in the Danish war, these companies were tested for the first time in the field.

The writings of v. Graefe, Benedict, and Rust, their sphere of activity in the army, and as teachers, are alluded to; also the gradual changes in the efficiency of the Corps and the Army medical system. Dr. v. Wiebel succeeded Goercke as Surgeon-General, and Dr. Lohmeyer was appointed after Wiebel's death. Dr. Grimm, the present Chief, succeeded Lohmeyer in 1851. Von Langenbeck, Stromeyer, and Esmarch—especially the former—receive due credit for systematizing, so to speak, the operations for excision of joints in gunshot wounds.

Prof. Gurlt's oration appears to have been prepared with great care and industry, and contains information of great value to all interested in the history and progress of military surgery. G. M. K.

ART. XLIII.—*Transactions of the New York Pathological Society. Founded in* 1844. Vol. I. *Based on the Proceedings for the year* 1875, *and largely supplemented from the Records of* 1844 *to* 1872. JOHN C. PETERS, M.D., Editor. 8vo. pp. lix. 272. New York: Wm. Wood & Co., 1876.

SINCE the *Account of the Origin of the Society* claims (page x.) that "through its influence the institutions of medical learning throughout the country have been compelled to establish chairs of Pathology," it may not prove uninteresting or unprofitable to the members of the profession who live outside of New York, to briefly review the course of a society for medical improvement "whose reputation, in fact, is world-wide," and which now, as the fruits of its first third of a century of life, gives to the public its first volume of Transactions.

This volume has the familiar appearance of the Transactions of the Pathological Society of a sister city, but with the important point of difference, that it contains no illustrations. A few good cuts faithfully executed are found to be of great assistance in giving vividness and tangibility to verbal description, and sometimes most happily supplement the text. The first sixty pages of the work are devoted to the Preface, History of the Origin and Rise of the Society, including a list of its officers and members, and a List of the Specimens presented in 1875. The general plan of the book is that adopted by the London Pathological Society, and followed by the Philadelphia Pathological Society in the publication of their transactions. The present volume, however, only includes Diseases of the Nervous System, Organs of Respiration, Organs of Circulation, and of the Organs of Digestion, it having been found by the editor that it was impossible to crowd the whole of the transactions of 1875 and the illustrative cases into this volume. It is stated, however, that the remainder is ready for the press, at the pleasure of the Society, and preparations have been made for the speedy appearance in print of all that is valuable in the archives of the Society, if such be the wish of its members.

The first public meeting of the Society was held June 14th, 1844, with ten members present; the formation of the Society having been due to the exertions of two or three of the junior members of the profession, notably Drs. M. Goldsmith, J. C. Peters, and L. A. Sayre. During the remainder of the year meetings were held informally at different places, but in December permission was obtained to meet in the Hall of the College of Physicians and Surgeons (which was generously offered free of rent), where regular meetings have been held since January, 1845.

The volume has been ably edited by one of the founders of the Society, Dr. John C. Peters. The report of Cases and Specimens presented during the year 1875, is supplemented by numerous cases from the year 1844, and the notes are rendered more practical and interesting by apt quotations from Jones and Sieveking, Vogel, Wilks, Moxon, and numerous other authorities upon the different subjects treated. Under the head of Abscesses of the Brain 37 cases are reported, idiopathic, traumatic, syphilitic, and those connected with caries of the skull. Curiously enough one history is accidentally repeated, Case 15 and Case 19 being one and the same.

A valuable list of all the cases of Aneurism of the Aorta presented before the Society, has been compiled by Dr. Francis Delafield, which shows that in the 84 cases given only 10 were females, and only 7 under 25 years of age.

The typography and press-work are excellent, and we look with interest for the future volumes of the series, which have been promised. F. W

Art. XLIV.—*A Report to the Surgeon-General on the Transport of Sick and Wounded by Pack Animals.* By George A. Otis, Assist. Surg. U. S. A. 4to., pp. 32. Government Printing-Office, Washington, D. C., 1877.

This very curious pamphlet contains descriptions and wood-cuts of an enormous variety of devices for carrying disabled men in the absence of wheeled vehicles. Two general kinds of horse-litters have found most favour in our army. One is the two-horse litter, essentially made of two long poles with an animal harnessed between them at each end, and the patient placed on a sacking or other connecting medium between the middle portions of the poles. The other consists in various modifications of the Indian "travois" or "travail." This is as if, in the arrangement just described, the rear horse was removed and the poles allowed to drag on the ground. The Dakotas place the burden in a sort of basket, fastened athwart the poles; but in the army the soldier is placed with his head towards the horse. The elasticity of the poles renders the motion much easier than would be at first supposed. In crossing streams the ends can be lifted by an attendant. This latter apparatus seems to have been found most useful in our campaigns against the Indians. One reason is, that tent-poles, lariats, and blankets are always at hand, and no elaborate appliances are liable to be lost or left behind. Economy of horses or mules is another advantage, as compared with the two-horse litter. We doubt if the very complicated devices which have been introduced in other armies will ever be practically available under the circumstances of Indian warfare.

B. L. R.

Art. XLV.—*The Mortality of Surgical Operations in the upper Lake States, compared with that of other regions.* By Edmund Andrews, A.M., M.D., Professor of Surgery in Chicago Medical College, assisted by Thomas B. Lacey, M.D. 8vo., pp. 123. Chicago: Hazlitt & Reed, 1877.

This laborious work is a reprint from the *Chicago Medical Journal and Examiner*, and the statistics which form its basis appear to have been compiled with great care. The cases are classified in seventeen tables. Those from the Lake States, by which the comparison is instituted, were obtained by personal application to men of known probity and acknowledged position in the profession; it being thought that experience thus obtained would possess a much higher value than would attach to miscellaneous answers obtained in response to a general circular, or the compilation of reported cases in journals, which are so apt to illustrate chiefly favourable results. Comparing cases thus obtained with the published tables of standard authorities, a very favourable showing is found to follow the surgery of the Lake States. Only in Sir James Simpson's statistics of cottage hospitals are equally favourable figures found, and upon those statistics Dr. Andrews very properly looks with suspicion.

Beyond the uncrowded condition of western towns and cities, with the consequently favourable hygienic surroundings, there does not seem to be any reason assigned for the successful results obtained by the surgeons of the Lake States. For we can hardly suppose that a higher grade of skill is possessed by the surgeons of that region than exists elsewhere. Most of the capital operations are included in Dr. Andrews's tables, and in them will be found answers to many general inquiries. The presentation of brief summaries of the views of different authors of reputation is a valuable feature in this pamphlet. The reader can see at a glance the different views entertained by writers, and very often the statistics upon which their opinions are based. For this work, laboriously, and we think faithfully, done by Dr. Andrews, the thanks of the profession are due, and his brochure will, without doubt, relieve many from much fatiguing investigation.

S. A.

Art. XLVI.—*Yellow Fever and Malarial Diseases—embracing a History of the Epidemics of Yellow Fever in Texas; New Views on its Diagnosis, Treatment, Propagation, and Control; Descriptions of Dengue, Malarial Fevers, Jaundice, the Spleen and its Diseases, and Diarrhœa Hemorrhagica; with Practical Remarks on their successful Treatment, etc.* By Greenville Dowell, M.D., Professor of Surgery in Texas Medical College, etc. etc. 8vo. pp. 241. Philadelphia: Medical Publication Office, 1876.

We have looked over this book carefully without discovering in what respect Dr. Dowell's views of the pathology, diagnosis, and treatment of yellow fever can be regarded as at all novel. Of diagnosis and pathology he has surprisingly little to say; the lesions which the disease produces being alluded to only in the most cursory way. This omission is the more remarkable as he has borrowed from Blair's work, for the illustration of his, two plates representing, 1st, the common appearance of the liver in yellow fever; 2d, hyperæmia of the intestines with points of extravasation. More certainly might be said of diagnosis by one who does not hesitate to lay claim to unusual skill in this branch of our art, being always, if we may trust his own statements, the first to recognize the presence of the scourge in the town where he happened to be practising at the time of its outbreak. His skill in diagnosis must have indeed been great, since in one case it rested principally upon the fact that the patient, who was under the care of another physician, fainted in crossing a yard.

The two prescriptions upon which he seems to have relied principally in the treatment of yellow fever were, 1st, one containing three grains each of sulphate of quinia, calomel, and Dover's powder, which he directs shall be repeated every three hours as long as the fever lasts; 2d, a mixture consisting of morphia, brandy, and creosote, which he gives specially for its power to allay sickness of stomach. At the same time the patient is to be kept in bed, lightly covered, not being allowed to get up even to stool. He condemns, on the other hand, the use of hot drinks and of all remedies calculated to produce excessive sweating, which he regards as a source of exhaustion. These directions he reiterates throughout the book until they become wearisome, even repeating the exact formulæ for the prescriptions above referred to as many as six times. The author's style is, moreover, rambling and exceedingly inelegant. In addition to numerous reports of different epidemics from medical officers of the United States Marine-Hospital Service and other gentlemen, which make up a large part of the book, it also contains a "Table of localities in the United States where yellow fever has appeared since A. D. 1668, with their elevations above the sea level; dates of commencement and suspension of the disease; mortality; and authorities for the statements;" which appears to have been worked up with a good deal of care.

J. H. H.

Art. XLVII.—*Myelitis of the Anterior Horns or Spinal Paralysis of the Adult and Child.* By E. C. Seguin, M.D., etc. 8vo. pp. 120. New York: G. P. Putnam's Sons, 1877.

The volume before us is a revised, and indeed, a rewritten edition of a little brochure which included an essay on "Spinal Paralysis of the Adult," and a lecture on "Infantile Spinal Paralysis." The author has seen that the division of the disorder into infantile and adult spinal paralysis was simply arbitrary, for the disease may come on at any period of life, and he has therefore classed it under one head, namely, "Myelitis of the Anterior Horns," or "Poliomyelitis Anterior."

It is a singular circumstance that after all the years that infantile spinal paralysis has been recognized as a distinct affection, it is only within a few years that it has been observed that the same form of paralysis occurs in adults. Since then observers are constantly adding to the number of cases of the disease in adults.

In the present essay Dr. Seguin deals with the affection only as it occurs in adults, and quotes all the cases that he has been able to collect. These number forty-five, and several of them have come under his own observation. The ages of the patients varied from fourteen years (a male) to sixty-seven. By far the greater number of cases occur in infancy, about the age of two years; but they are met with occasionally from this age until about twenty, when there seems, from Dr. Seguin's cases, to be an increase again.

The chapter on pathological anatomy is complete, but adds nothing to what was already known on the subject. There is an excellent table of autopsies of twenty-nine cases of "infantile spinal paralysis."

There is one thing that strikes us in reading the histories of the cases reported, and quoted by Dr. Seguin, and it is the greater susceptibility to cure in the adult .than in the infantile form of the disorder; and also that there is far greater mortality than is met with in children. All writers agree that infantile paralysis is rarely ever fatal to children, but that complete recovery is to be looked for in but a small proportion of cases. Of the forty-five cases in Dr. Seguin's work, five were fatal, two directly from the disease, and three from other causes. Twelve of the remaining forty recovered entirely.

Of course the entire number of cases is yet too small to base positive conclusions upon; but the points connected with prognosis indicate to us that there is either some difference in the disease as occurring in adults and children, or that the former have a greater power to recover from affections of the spinal cord.

No doubt this essay will be of much use in bringing before the profession the knowledge of the affection, and will induce many to place their cases on record, so that their is reason to believe that our information on the subject will be largely increased, and there will be more definite facts as to etiology, etc., established.

W. S.

Art. XLVIII.—*A Practical Treatise on the Diseases of Children.* By J. Forsyth Meigs, M.D., Physician to the Pennsylvania Hospital, etc., and William Pepper, M.D., Professor of Clinical Medicine in the University of Pennsylvania, etc. Sixth edition, revised and enlarged. 8vo. pp. 1012. Philadelphia: Lindsay & Blakiston, 1877.

In preparing for the press the sixth edition of this justly popular work, which has now been before the profession for almost thirty years, the authors have carefully revised the text, and have brought it fully up to the progress of the day, and have added two new articles, one on night terrors, and the other on epidemic cerebro-spinal meningitis.

The previous editions have been so fully noticed in our pages that it is all sufficient to say of the present edition that it is worthy of the standing of the work, and of the reputation of its distinguished authors.

ART. XLIX.—*Handbook for Hospital Visitors.* 12mo. pp. 151. New York: G. P. Putnam's Sons, 1877.

ON the title page of this little volume we read, "No. 13. State Charities Aid Association," from which we infer that it is one of a series issued under the sanction of that well-known New York organization.

It is a compilation containing a great deal of sound matter, very tersely stated; so condensed, in fact, as not to admit of analysis. Much of it, however—almost the whole of the first fifty-six pages—seems to us to concern the builders or managers of hospitals rather than the visitors. Thus on page 25 we read: "The space given up to ward windows should be one-third of the wall space; this is a cardinal rule for visitors to bear in mind." What is a "visitor" to do if the window-space is less?

Perhaps, however, this is a hypercriticism. The idea is that the hospital visitor should know how such institutions are best constructed and carried on; and the author, whose name does not appear, has evidently studied the whole subject with zeal and intelligence. J. H. P.

ART. L.—*The Medical Register for New England.* By FRANCIS H. BROWN, M.D., M.M., S.S. 16mo. pp. xl., 413. Boston: H. O. Houghton & Co., 1877.

This useful little volume contains lists of the New England Medical Societies, Medical Schools, Hospitals, Dispensaries, Benevolent and Charitable Institutions, with the names of their officers, and such information as is likely to be wanted by the inquirer. The same information is also given concerning the national associations, and there is added a business guide with an alphabetical list of the members of each of the State Medical Societies, with their residences, date of graduation, etc. The work is handsomely gotten up, and reflects credit upon the zeal and enterprise of its editor and publishers.

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES

IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

The Nerves of the Labyrinth.

Horbaczewski, in a communication made at the Academy of Vienna, gives the results of his investigations on the nerves of the internal ear in man and animals. He finds that in the sheep the nervus vestibuli and the nervus cochleæ are completely separated from each other at their origin. The primitive fibres of the cochlea remain always much finer than those of the vestibular nerve. It is remarkable that the size of the vestibular nerve increases with the size of the animal in a much more rapid ratio than the size of the cochlear nerve; so that, for example, the nervus cochleæ of the horse appears much more slender, as compared with the nervus vestibuli, than that of the rabbit or of man. In the sheep the nervus cochleæ is distributed exclusively to the cochlea, and the nervus vestibuli to the remaining portion of the internal ear. But this distinction is by no means so sharply marked either in man or in the horse. In the horse there is constantly an exchange of fibres, though a comparatively slight one, between the two nerves. In man the two roots form a common trunk, which subsequently divides into the two nerves. The nervus cochleæ is not, however, exclusively distributed to the cochlea, but gives off a fine branch, which runs in the recessus cochlearis to the vestibular extremity of the ductus cochlearis, and through the macula cribrosa to the septum of the two sacculi contained in the vestibule. He thus demonstrates the correctness of the statement made by Flourens that the vestibular nerve is a completely distinct pair from the auditory nerve or nervus cochleæ.—*Lancet*, May 26, 1877.

On the Correlation between the Distribution of the Arteries and the Physiological Regions of the Brain.

At the meeting of the Société de Biologie, on Jan. 6 (*Progrès Médical*, Jan. 13), M. Duret showed some drawings and injections, the aim of which was to establish the fact that there exists great correlation between the distribution of the arteries and the physiological regions of the brain. As in man, so in the dog, the cat, and the rabbit, the territory of the Sylvian artery corresponds very nearly to the situation of the voluntary motor centres described by Ferrier. It results from this fact that the brain must be divided into three great regions, having the limits of the vascular territories; the motor, intellectual, and sensory regions, answering to the Sylvian, anterior cerebral, and posterior cerebral arteries, respectively. The lobes and convolutions are only "accidents of the soil," so to speak, playing a secondary part. From this point of view M. Duret has undertaken the study of the development of the brain. He attributes a preponderating influence to the mechanical action exerted by the cranium on the encephalic vesicle at the time of formation of the folds of the hemispheres. He remarks that, the smaller the facial angle, so much the more does the fissure of Rolando in man, and the crucial fissure in animals, approach the anterior parts of the cranium. This organ has already a definite form, and is resistant when the encephalic vesicles are still thin and membranous; and, held between the opposed action of the two cranial hemispheres, anterior and posterior, they fold themselves over to the most feeble side, that which is opposed to the base of the two cerebral nuclei already formed at this time; the smaller the cranial cap, the more direct its action, the more anterior are the fissure of Rolando and the crucial fissure. There is a third fact on which M. Duret insists. In man, a special artery exists for the third convolution; it is also found in all the animals whose brain has been studied, and it always occupies an analogous situation, even in those whose cerebral surface is smooth; it corresponds with the centres described by Ferrier for the movements of the lips and tongue. Pursuing this idea, M. Duret extirpated this region in three dogs, in order to see if there supervened in animals phenomena analogous to those which are observed in man, when there is a lesion of this part of the brain. Although the result is not yet final, it appears that two of the dogs lost the faculty of barking.—*London Medical Record*, May 15, 1877.

Researches on the Secretion of Sweat.

B. LUCHSINGER, in a recent paper (Pflüger's *Archiv f. Physiologie*, Bd. xiv. Heft 8) shows experimentally the direct functional dependence of the sweat secretion on certain nerve irritations, and thus places the relations of this obscure process to the nervous system on the same footing as Ludwig, Bernard, and Heidenhain have done for other glands and secretions. Luchsinger's experiments were made upon cats. These animals, under certain conditions, begin to sweat freely on the under surface of their paws. If, however, one of the sciatic nerves be divided, or ligatured, no sweating occurs on this foot, whilst it continues to do so on the other three. Sweating on the injured side can, however, be induced by direct irritation of the divided nerve, and the effect can be produced ten or fifteen minutes after amputation of the leg. The sweating persists as long as irritation is applied to the nerve. The view, therefore, that sweating is a mere process of filtration becomes untenable; the view also that the act of sweating is a simple excretion of a performed and stored-up fluid is equally unsatisfactory. Sweating must be regarded as a true process of secretion, and this function of the sweat-glands is directly connected with the excitation of certain secretory nerves—the sweat nerves. The nerve fibres possess no automatic activity. Their natural stimuli proceed from special central apparatus. Professor Luchsinger has made investigations to determine the seat of these nerve-centres, and the mode in which they can be excited, as well as the course of the sweat-nerves for the hind foot. If the spinal cord be divided in the middle of the dorsal region, and the animal be then placed in conditions which ordinarily excite the secretion, it continues to sweat in both fore and hind feet, but if the posterior segment of the cord be thoroughly broken down with a probe, the secretion is permanently arrested in the hind feet. The centre must therefore lie in this part of the cord. The sweat-nerves do not, however, run as might *à priori* be imagined, in the course of the muscular and sensory nerves of the lower limb. They do not proceed from the sacral plexus, proofs of which may be obtained both by the effects of stimulation and of section. They run in the cord of the sympathetic, and having issued from this join the sciatic nerve. They pass from the sympathetic by fibres proceeding to the first four roots of the lumbar plexus, as well as to the roots of the three last dorsal nerves. It is only when all these nerves have been divided that the sweat secretion is arrested in the foot, whilst irritation of any of the fibres can induce it. The modes in which the sweat-centres can be excited are just those that are in ordinary operation. In some instances peripheral stimuli and differences in the quality of the blood exert a great influence. The secretion is induced by psychical conditions, as anxiety; and Luchsinger has observed it to be occasioned by a peripheral stimulus in a colleague, in whom the use of pepper causes the formation of large drops of sweat on the forehead and bridge of the nose. Amongst the changes in the quality of the blood observed by Luchsinger to exert a positive influence on the secretion are dyspnœa, exposure to a high temperature, and the toxic influence of alcohol. These produced an increased secretion, even when the cerebral hemispheres had been removed to abolish psychical impressions, or when the cord had been divided, or the four cerebral arteries had been ligatured.—*Practitioner*, May, 1877.

MATERIA MEDICA AND THERAPEUTICS.

On Chloral.

Dr. Liebreich, Professor of Therapeutics in the University of Berlin, in an article on chloral (*Practitioner*, June, 1877), says: Taking full account of the clinical facts, I believe that in the case of chloral it is in the highest degree essential that it should be freed from all chemical impurity whatever; and that the chemical impurities special to chloral hydrate, other than its highest state of crystalline purity, are, more than in other cases, of a kind to interfere with and to contravene the legitimate and desired effects of the drug. For this reason I would altogether prohibit the use of chloral, either in solution or otherwise, which is not of the utmost purity. I may add that there is no practical means by which the purity of chloral in solutions can be ascertained; and the best authorities state that a very large proportion of the solutions current in medical and pharmaceutical practice are of an impure, untrustworthy character. and therefore liable to produce dangerous results. Pure chloral produces rest and relieves pain without giving rise to excitement, nausea, or gastric irritation: and its effects do not need to be enhanced, as in the case of opiates, by increasing doses, if its administration needs to be continued. Impure chloral, on the other hand, irritates the stomach, produces excitation, headache, sickness. To produce the best effects of chloral it should not be given on an empty stomach. It is not necessary that a full meal should have been taken, but it is desirable that some light nourishment or a biscuit or something of the sort should be eaten before the dose of chloral is administered.

I may add, finally, one word as to the clinical observation of the effects of chloral hydrate when it has been administered in excess, or when it has been used as a poison. Chloral hydrate poisons by paralyzing the heart, and its effects are observable in retardation of the pulse and respiration. Hence I have been led to urge the use of strychnine in combating these effects. The results of my experiments (*Transactions of the Academy of Medicine of Berlin*) have been confirmed by subsequent observers, but I believe that this antidotal use of strychnia to combat excessive or fatal doses of chloral may still be usefully brought to the notice of practitioners in general; for it is not so far or, I observe, so generally known as it might be. I have often been struck with the report of bounding pulse, severe headache, and nervous excitement in reported cases of an overdose of chloral; these are not the characteristic effects of chloral, but of impure and poisonous substances sold as chloral, and especially the various impure and unreliable solutions of chloral, which physicians and dispensers too readily employ.

The Mode of Action of Narcotics.

The last quarterly number of the *Archiv für Exper. Pathol. und Pharmacop.* contains an article on this subject by Dr. BINZ. Funke long ago affirmed that brain-substance in a state of rest was alkaline, but acid after a period of activity. Durham regarded this acid condition as hindering the oxidation upon which the function of the brain depended. Heynsius, on the other hand, looked upon it as retarding the transudation of albumen into the brain-substance. Of more recent date is Preyer's theory, that sleep is due to a tiring of the brain through an accumulation in it of the products of tissue-waste, which seize upon the oxygen destined for the brain, and thus renders it unable to perform its function. But relying on the changes produced by the action of morphia, chloral, ether, and chloroform on fresh pieces of living brain—coagulating and darkening the intercellular substance; and taking into consideration the properties possessed by quinine and other allied alkaloids, of entering into a kind of temporary combination with certain forms of protoplasm, and thereby diminishing its oxidizing power, Binz supposes that these bodies possess strong affinities for the gray substance of the brain, and therefore enter into combination with it, and that, through the resulting alterations in its tissue-changes, it is unfitted to perform its function of wakefulness. Chloroform and ether form less stable combinations, and are, accordingly, more fleeting in their action than morphia or chloral. His experiments further show that sleep is not necessarily preceded by diminished blood-supply, but that this follows rather as the consequence, than as the cause, of the narcosis. Like other resting organs, the brain in a state of sleep contains less blood than in the active condition.—*London Med. Record*, April 15, 1877.

The Physiological Action of Salicylate of Soda.

The results of a series of investigations made by Dr. DANEWSKY show that the salicylate of soda exerts a very characteristic influence on the vascular system. In the first instance it augments the energy of the cardiac contractions, causing more powerful systolic movements and increase of the blood-pressure. In consequence of the action of the drug on the vagi the pulse frequency is sometimes greater, sometimes less than normal, and at a later period from the excito-motor cardiac nervous system becoming paralyzed the pulse is weak. The augmentation of the blood-pressure is due partly to the greater energy of the cardiac contractions, partly to the direct stimulation of the vasomotor centres. This is proved by the fact that the blood-pressure falls after division of the spinal cord in the cervical region; whilst it rises on the injection of salicylate into the carotid artery, which causes the brain to receive a certain quantity of the remedy before the heart. There is an increased frequency of the respiratory movements due to irritation of the pulmonary vagi, and not to direct participation of the respiratory centre in the medulla. It is only after very large doses have been administered that the respiratory centre is gradually or rapidly paralyzed and asphyxia is produced. In regard to the influence of the salt upon the temperature, which is of chief importance in a therapeutic point of view, it is very inconstant as well as inconsiderable both in healthy men and animals, but in the febrile state its action is powerful in both. The most probable explanation of its refrigerant powers he considers to be that in the febrile condition there is diminution of blood-pressure as a result of diminished cardiac and vasomotor activity, but when the salicylate of soda is given, it acts like quinine and digitalis in augmenting the blood-pressure and promotes the elimination of caloric.—*Practitioner*, May, 1877, from *Arbeiten aus der pharmakolog. Laborat. zu Moskau*, 1876, Band i. p. 198.

Carbolated Camphor as a Surgical Dressing.

Dr. Soulez, of Romorantin, recommends this substance (*La Tribune Médicale*, Dec. 24). He prepares it by mixing 15 grains of carbolic acid (dissolved in an equal quantity of alcohol) with 37½ grains of powdered camphor. The product is an oleaginous pale-yellow liquid, with a feeble odour of camphor, and none of carbolic acid. It does not mix with water or glycerine, but mixes with olive and almond oils. The infusion of saponaria (1 part of the leaves of soapwort to 10 parts of water) emulsifies it, as does also the alcoholic tincture of Panama bark. When mixed with an equal part of the carbolated camphor, this tincture produces a mother emulsion, which, when weakened with water, is used to prepare the antiseptic wadding.

In dressing a wound, Dr. Soulez covers it first with a square of wadding, which is impregnated with a mixture of carbolated camphor and olive oil. This must be large enough to extend 2½ to 3 inches beyond the wound. This is then covered by six other layers of wadding, impregnated with the emulsion above mentioned. Each layer should be one inch wider than the one below it. A thin envelope of caoutchouc is then applied to prevent evaporation, and over this a layer of dry wadding, and the whole is then secured by a bandage. The author alleges that this dressing is very easy of application; all the materials can be prepared beforehand and kept in well-covered jars. Before applying it, the wound should always be washed with the emulsion of carbolated camphor. When applied to a stump, this dressing keeps it enveloped in a warm atmosphere saturated with vapour of water, which lessens the exciting effects of the oxygen of the air, and is protected by the numerous layers of soft wadding, which keep out all infecting germs. Dr. Soulez renews the dressing usually every six days, but sometimes leaves it on for ten days. So far he has never known the carbolated camphor to cause the least irritation of the skin or the wound. When the caoutchouc is removed, all the layers of wadding are found to be as moist as when first applied. He states that he has obtained the following advantages from the use of his dressing: 1. Lessening of the reaction after major operations; 2. Cessation or diminution of the pain; 3. Diminution of the suppuration.—*London Med. Record*, May 15, 1877.

On a New Remedy in Certain Forms of Skin-disease.

Dr. J. Ivor Murray, of Scarborough, gives (*British Med. Journal*, May 19. 1877) the following account of this new remedy:—

Nearly twenty years ago, when I went out as her Majesty's Colonial Surgeon to Hong Kong, I accidentally became aware of the existence of a remedy, known to the natives of the Malay Peninsula (for the cure of ringworm and some other forms of skin-disease), and which in their hands had proved most successful. After much trouble, I obtained some of the remedy in the form of an imperfect tincture, prepared by immersion and maceration of the root of a plant in the impure native spirit called arrack, and verified the wonderful power it exerted in the cure of various forms of tinea and some forms of eczema. The quantity of the remedy I obtained was at first very small, and I encountered great difficulty in getting it in any quantity, as the secret appeared to be kept in one family. After much trouble, however, I succeeded in increasing my supply, and got proof-spirit substituted for the arrack in its preparation. Subsequently, Messrs. Watson of the Hong Kong Dispensary negotiated with the natives to procure the remedy more freely; and, at my request, they have made arrangements to supply it, to any reasonable extent, through their London agent, Mr. Edwards, 38 Old Change, of whom it may now be obtained. It is known as the fluid extract of *Tong Pang Chong*.

I have submitted some of the root, through the kindness of my friend Dr. Hooker, to Mr. Jackson, the curator of the Kew Museum, who pronounces it to be "the produce of a Berberideous plant, and nearly identical with *Akebia quinata* (Decaisne)." Mr. John Thomson of King's College has extracted from the tincture a crystalline substance, which may prove to be allied to chrysophanic acid, and so account for its action.

I shall not pretend to enter into any explanation of the *rationale* of its curative power, but limit myself to the statement that I have used it in hundreds of cases, often with almost magical effect, and that it is now much employed in the East. It is necessary, however, to discriminate in selecting the cases in which to test its value. I have found it most useful in tinea circinata, where the circular margin of the disease is maintained; and perhaps it is even more successfully used in that very troublesome form of eczema (tinea?), which attacks the inside of the thighs and perineum, and the parts around the anus, which I have known to resist every description of treatment, internal and external, even in the most experienced hands; and I may add that, both in this and other forms of disease, I have found it succeed where the Goa powder had completely failed.

The method of application which I follow is to paint the part over by means of a camel's-hair pencil three times, allowing it to dry between each coat, and this is done every night at bedtime, until the part resumes its natural appearance.

I have employed it successfully in many cases in this country, both in my own practice and in consultation with other practitioners. The following is a characteristic case:—

A. B., a gentleman high in the Bengal Civil Service, arrived in England in July, 1874, then suffering from eczema marginatum in a slight degree. He placed himself immediately under the care of a distinguished specialist in London, and subsequently was treated by one of our most celebrated physicians, who ordered him to Harrogate. From the latter place he came here, having, from the first, steadily got worse; so that, when he put himself under my care on September 22d, or fourteen months after the first appearance of the disease, the patches were over eight inches in diameter, and the patient in agony, and almost sleepless. After trying other treatment unsuccessfully, on September 29 I applied the tong pang chong; and, on my visiting him next day, he declared the result to be almost miraculous. He was obliged to leave Scarborough on October 4, and shortly afterwards returned to India. The disease had entirely left him before he embarked.

In conclusion, if this new drug prove, in the hands of other practitioners, half as efficacious as it has done in my own, it will be a valuable addition to the means of treating one of the most troublesome classes of disease, and quite justify me in bringing it before the notice of the profession.

Chloral in Delirium Tremens.

A painful case, which has recently occurred, of a fatal result following the use of chloral medicinally employed, has raised the question whether chloral is a safe hypnotic, and to what extent it may with advantage be employed in the treatment of delirium tremens. Chloral seems at the present time to be as popular a remedy with our profession as with the public; and it is only when some sudden fatal result occurs that attention is called to the dangers which may attend its use; and we are too apt to imagine that some special want of precaution or excess in dose has been contributary to the fatal issue. But a truer view would be that the doses habitually prescribed and sanctioned by eminent authority, and employed in our large hospitals and asylums, are in many cases excessive. and that, especially in the case of delirium tremens and insanity, chloral is used to a needless and dangerous extent. Particularly is it so with delirium tremens and the various grades of alcoholic poisoning which are included under that term. Chloral in large or repeated doses is the routine, and oftentimes the exclusive, treatment to cut short delirium, to produce quiet and sleep, and to prevent those sudden outbursts of maniacal fury, which are sometimes so dangerous to the patient and his attendants.

It is time, then, that the profession should face the question—Is chloral a necessary, or even a safe, narcotic in cases of alcoholic poisoning, acute or chronic? Experience tends to the conviction that the practice of giving chloral in all such cases, and pushing it till it produces hypnotic effects, is one attended by immediate dangers, injurious in its ultimate effects upon the patient, and liable to great abuse on the part of nurses and attendants.

The cases of alcoholism in which narcotics are employed may, speaking roughly, be divided into three categories. A large number of cases occur in persons who, habitually moderate drinkers, or even abstemious, under the influence of excessive mental anxiety, or strain upon the nervous energies, or from some other cause, indulge in a prolonged drinking bout, which. with abstention from food, results in an acute attack of delirium tremens. In such cases the noisy violence of the delirium, the absence of sleep. and the general excitement of the whole system. seem to indicate the employment of sedatives. and. if combined with proper nutriment, quiet, and the withdrawal of stimulants, they no doubt conduce to a favourable issue. That such cases may be benefited by chloral we do not for a moment deny, but the doses need not be large. and should not be too often repeated; and we must add that the success of the treatment is proportioned to the amount of nourishment which can be given. Secondly, there are the cases of severe delirium tremens, usually the sequel of prolonged excess, rarely the first attack. and often arising only as the result of combined disease or injury and alcoholism, in which the constant restlessness, tremor. delirium. and jactitation, seem to threaten life by exhaustion, unless something be done to give temporary quiet and sleep to the patient; and in some cases, as, for example, of fracture liable to become compound, the local conditions render quiet essential. In these circumstances narcotics may be employed. but with great caution. for too often the quiet of sleep only passes into that of coma and death, and, as we shall see, chloral is not the safest drug in such cases. In a third class of cases the condition is one which is rather the result of continued excess than its direct effect. The nervous, restless. irritable condition, with or without slight tremor, with loss of appetite, constipation, and a craving for drink. and drink only. exists during the day, and when night comes, this condition passes into one of restlessness, slight delirium with hallucinations, or actual violence. It is true that this state is rarely seen apart from the direct effects of alcohol. In most cases the passion for drink is so strong, the craving for it so subtle and irresistible, that no subterfuge or artifice is left untried to get hold of drink, and, apart from physical impossibility, such people will and do drink. In these cases, especially at the present day, and amongst the better classes, there is often a combined indulgence in alcohol and chloral, and chloral-drinking, first used to drive away the troubled dreams and hallucinations at night, is prolonged and increased, in order to permit of a freer indulgence in alcohol. Now, it is in such cases as these that the use of chloral, whether as a sedative or a hypnotic, is most injurious. As a sedative, in small and frequently-repeated doses, it may dull the senses and quiet the craving, but it aggravates and prolongs the gastric catarrh, which is one of the exciting causes of the craving, and it does nothing to restore the healthy tone and appetite. As a hypnotic it is in some cases entirely ineffectual, even in large doses, and where it acts beneficially in this respect, the dose should never be maintained at a high level after one or two nights, but with proper repeated nourishment may be rapidly diminished or entirely withdrawn. But chloral has some special dangers in the case of drinkers which should not be lost sight of.

Alcohol, as is well known, produces, when continuously employed, fatty degeneration, of all the organs, and, amongst others, the heart; this more especially in some cases of spirit drinking. Chloral, too, like its ally chloroform, probably gives rise to a fatty degeneration of muscular tissue, and in particular of the heart, closely analogous both in its mode of production and character to that due to alcohol. Again, as is well seen in some cases of delirium tremens, alcohol causes a fluid condition of the blood, in which the normal state of the blood-corpuscles, and their relation to the liquor sanguinis, are altered; and as a physical condition evidencing this we see the defective coagulation of the blood and its tendency to transude too readily. We are not here entering into the intimate relations of these changes, and the effect they have on oxygenation and tissue nutrition; it is enough for our present purpose merely to indicate them. Chloral has a like effect, and similarly causes gradual destruction of red blood-corpuscles; so that in chronic chloral poisoning purpura is of frequent occurrence. In toxic doses chloral was formerly said to destroy, first the cerebral, then the muscular, thirdly the respiratory, and finally the cardiac functions. But this is certainly not true so far as concerns the usual result in suddenly fatal cases in the human subject, and modern research goes to disprove this view, and to show that cardiac paralysis, whether produced through the central nervous system or by a direct action on the heart, is the usual mode of death. And especially will this be the case when, from the effects of alcohol, or of continued chloral drinking, the cardiac muscle is already considerably degenerated, whilst at the same time the condition of the blood is such as to supply an imperfect stimulus to its contraction, and the impaired reaction between the blood and pulmonic capillaries affords an additional impediment to the circulation. In such cases sudden cardiac paralysis or asystole may put an end to life before any cerebral symptoms or retarded respiration have given the warning note of danger. Nor can any amount of negative evidence, derived from the absence of marked physical signs of organic disease, be sufficient to counterbalance the clear and decisive results of pathological investigation, which show how grave a degeneration may coexist with apparent health. And, be it remarked, such fatal results do not of necessity occur only after a large dose. In healthy subjects death has occurred in this manner from so small a dose as thirty grains; and there is abundant evidence that the toxic effects of chloral are cumulative in a higher degree than the hypnotic, and that this does not depend solely upon accumulation of the poison itself in the blood.—*Lancet*, May 19, 1877.

MEDICINE.

Alterations in the Marrow of Bones in Pernicious Anæmia.

Cohnheim has lately described a case of pernicious anæmia, observed in the hospital at Breslau (*Archiv für Path. Anatomie*, Bd. lxviii. Heft 2), in which, in addition to the characteristic alterations in other organs, the marrow of all the bones exhibited peculiar changes, visible even with the naked eye. The marrow was of an intensely red colour, and it was found, when examined with the microscope, that it contained scarcely any fat cells, but instead (1) large numbers of colourless corpuscles, of which many resembled lymph corpuscles, and many others had an epithelial aspect, and contained one or more large nuclei; (2) a large number of coloured corpuscles, the most remarkable of which were those which contained nuclei, which, like the cells, were coloured red. Nucleated red blood-corpuscles were also detected post-mortem in blood taken from other parts of the body, though none had been discovered in it during the last week of life. —*Med. Times and Gaz.*, March 10, 1877.

The Minute Anatomy of Scarlatina.

At a recent meeting of the Pathological Society of London, Dr. Klein read a paper (*Med. Times and Gaz.*, May 5, 1877) based upon his researches on this subject. He said that he had examined in all twenty-three cases of undoubted scarlatina, dying from the second to the forty-second day of the disease, specially investigating the state of the kidney, liver, spleen, and lymphatic glands. The results of his observations on the throat and skin would not be published on the present occasion. The duration of the disease between the extremes above stated was as various as possible. Most of the subjects were between the ages of two and twelve; but one was as old as thirty-eight years. First, with respect to the *kidney*. This organ was examined in twenty-three cases. In the *first week of the disease* the vascular and glandular parts of the organ presented the following changes: 1. The nuclei on the Malpighian bodies were increased in number. 2. The intima of the minute arteries had undergone hyaline degeneration; they were swollen into cylindrical hyaline structures, with narrowing of their lumen. At the same time, larger or smaller portions of the glomeruli became impermeable —hyaline at first, fibroid afterwards; while Bowman's capsule also appeared hyaline. These changes were constant. 3. Another early change was multiplication of the nuclei of the muscular coat of the minute arteries. This was observed in different parts of different arteries, but especially at the point of their entrance into the glomerulus. 4. Parenchymatous nephritis—swelling and multiplication of the nuclei of the epithelium, and a granular appearance of the tubules and Malpighian bodies. In some cases the epithelium was found detached. With respect to the second of these changes—the hyaline degeneration —Dr. Klein said that it was decidedly the same as that described by Sir William Gull and Dr. Sutton. Nillsen had recently described the walls of the capillaries of the pia mater as suffering a similar change in several diseases, with shrinking of the endothelial nuclei, as well as further changes; and his chemical examination had shown that the hyaline substance reacted like elastic tissue. On this account, and because the change was observed at the points of division of the vessels, Nillsen's observations were interesting confirmations of Dr. Klein's. Sir William Gull and Dr. Sutton had described a similar change in chronic Bright's disease, and the real place of origin in their cases was probably the elastic tissue between the outer and middle coats. Another disease in which a similar alterathen occurred in the arteries was typhoid fever. Next, with respect to the muscular fibres, there was no doubt that the nuclei were increased, that they belonged to the muscular fibres, and that they did not come from migrated cells; but there was some difficulty in deciding whether this proliferation was accompanied by increased size of the muscular fibre or true hypertrophy. Against the existence of true hypertrophy were its early appearance, and the absence of sufficiently extensive disease of the capillaries to account for such wide-spread arterial enlargement. Klebs had described cases of scarlatina dying early of anuria, in which the glomeruli were found pale: the urinary tubules frequently not changed; and neither interstitial inflammation nor signs of catarrh present. There was, therefore, in these instances little beyond congestion to account for the symptoms. With such cases Dr. Klein had not met; he observed nuclear increase in all his specimens, and if no lesion were found he would be inclined to account for the anuria, not by compression of the capillaries, but by extreme contraction of the arteries from the action of some poison in the blood. The parenchymatous (tubular) changes were at first very slight, and quite local. *After the first week* of the disease, the changes might be described as (1) infiltration around the tubules, commencing in the tissue about the large vascular trunks; and (2) parenchymatous nephritis, the tubules being crowded with lymphoid cells and hyaline cylinders, and the epithelium presenting fatty degeneration. Of these two changes, the interstitial infiltration occurred first between the medullary rays, and afterwards spread to the cortex; in some cases the resulting growth resembled adenoid tissue. In one case, that of a child of five, dying on the thirteenth day of the disease, the interstitial change was advanced, and emboli were found in the arteries, consisting of fibrine and a few cells. In all cases the infiltration was accompanied by swelling of the kidneys and parenchymatous change. Dr. Klein said that, while many observers had described interstitial nephritis as rare in early scarlatina, he considered it a regular lesion. Secondly, with respect to the *lymphatic glands of the neck*, it was observed that in scarlatina the uninuclear cells of the central parts were greatly diminished in number, and that their place was taken by large multinuclear cells, with intermediate forms; while the peripheral parts of the glands were occupied by crowds of ordinary lymph-cells. Fibrinous thrombi occurred at the same time in the bloodvessels, and giant-cells were found. Further changes were in the direction of fibroid degeneration. In the *liver*, which was examined in eight cases, Dr. Klein discovered (1) granular opaque swelling, or even fatty degeneration, of the hepatic cells; (2) a change on the arteries similar to that described in the renal vessels; and (3) great thickening of the interlobular connective tissue of Glisson's capsule. These appearances were well marked in a case of only two days' duration. The *spleen* presented (1) enlargement of the Malpighian bodies; (2) hyaline degeneration of the intima of the arteries; (3) distinct multiplication of nuclei of the muscular coat of these vessels; (4) adenoid growth around the arteries; and (5) infiltration of the lymphatic follicles with large hydropic cells. In conclusion, Dr. Klein said that, besides the preceding changes, he had observed a swollen, hyaline state of the basement membrane of the trachea, and of the elastic tissue of the vocal cords. It was interesting to remember that this tissue, so extensively affected over the body in scarlatina, was one specially resistant to the swelling effect of reagents.

Dr. MURCHISON, in thanking Dr. Klein for his communication to the Society, remarked that he seemed to have shown that what was generally considered to be a purely desquamative disease, the renal complication of scarlatina, was really complex, including also changes on the arterial walls and on the connective tissue of the organ. He wished to know whether Dr. Klein considered that these changes disappeared in cases that recovered; and, if so, how? Another question, interesting in its clinical bearing, related to the occurrence of albuminuria between the middle of the third and the middle of the fourth weeks, which might be the first symptom of serious disease of the kidney. Could Dr. Klein offer any explanation of this circumstance?

Dr. Greenfield said that Dr. Klein's observations closely corresponded with some that he had made himself in the course of examination of twenty-five collected cases. He had further had the advantage of studying the morbid anatomy of scarlatina under Professor Charcot, in Paris; and Charcot had said that he believed that interstitial nephritis occurred as a lesion in the disease. While he (Dr. Greenfield) could personally confirm most of Dr. Klein's statements, he had to add that, in some cases, he had quite failed to find evidence of interstitial change. He had observed the affection of Glisson's capsule in the liver; and it was remarkable how firm the liver felt, even to the hand, in the sixth or seventh week of scarlatina. He was less acquainted with the changes in the spleen. The appearances in the lymphatic glands of the neck closely resembled those found in diphtheria; and Dr. Greenfield believed that all these changes described as found in scarlatina were not specific, but the result of inflammation. Even in the kidneys the same lesions had been seen by him in typhoid fever and in diphtheria.

Dr. Moxan said he must confess that Dr. Klein's results were more new to him. In general hospitals their experience of fatal scarlatina and acute renal disease was rare; while the large white or congested kidney was more familiar, inasmuch as it was of older standing. He did not remember having ever seen Dr. Klein's phenomena; and he had not associated clouds of corpuscles around the Malpighian bodies with the acute changes in this state. He had, however, long looked for a pathological explanation of the clinical difference between the acute Bright's disease of scarlatina, and that due to other causes—how the former disappears, but the latter not. Could Dr. Klein give any explanation of this? In specimens of ordinary tubal nephritis carefully prepared he had never seen much evidence of exudative nephritis; perhaps the cases had been too advanced. He wished, in conclusion, to ask Dr. Klein how he could identify as an embolus the material found in an artery post-mortem.

Dr. Klein replied: With respect to the President's questions, he had one case in an adult, fatal on the forty-fourth day, of pneumonia: in it the parenchymatous and interstitial changes in the kidney were both slight; and, comparing this with the other cases, he had concluded that it was recovering from the interstitial disease. As regarded albuminuria, some of the patients had had none, and yet post-mortem the urinary tubules presented casts and advanced disease. He accounted for this by suggesting that the albumen remained arrested in the kidney, and did not pass into the urine. Dr. Klein said that he was glad to hear from Dr. Greenfield that his researches had been confirmed by other pathologists. Of course cases occurred where no interstitial disease could be discovered. At first there occurred a small deposit of cells around the vessels, and then these went on increasing. All persons dying of scarlatina presented at least as much as this. In reply to Dr. Moxon's question regarding embolus, Dr. Klein said that when an artery presented within it at the point of its division a bit of fibrin, filling it, and causing dilatation with accumulation of blood behind, while the branches in front were small and empty, he concluded he had before him an embolus, and not a post-mortem product.

Salicine in the Treatment of Rheumatism.

Mr. A. D. L. Napier, in a short article on the action of salicine contributed to the *Practitioner* (June, 1876), thus speaks of his experience with this drug in rheumatism.

The form of rheumatic disease for which I have most frequently ordered salicine is the arthritic, and in these cases relief was almost invariably experienced. In one case of severe arthritis of the left finger, wrist, and ankle-joints, decided benefit attended the exhibition of a fifteen-grain dose, and, though the disease was of six days' standing, complete relief from pain was experienced after three other doses. In such cases I have repeatedly seen reduction of pain, redness, heat, and swelling about an hour and a half after the administration of a twenty-grain dose.

The salicylate of soda, in addition to its general action in lessening arterial tension, acts frequently as a powerful diaphoretic, producing increased perspiration, large flow of urine, and in some cases an increased quantity of saliva. These latter effects seem to be more often caused by the soda salt than by the acid. Although swelling frequently is materially decreased in a short time by salicine, yet in some cases this is not so: I have a patient at present, who suffered from rheumatic arthritis of the wrist-joint, was treated by salicylate of soda, and relieved of all acute pain, more than a month ago, whose joint is still greatly swollen, and useless for all active exertion; he is now rapidly improving under galvanism.

Symptoms exactly similar to cinchonism may follow the prolonged use of salicine. An old gentleman, who was under my care suffering from rheumatic affection of the wrist and ankle joints, was ordered twenty grains of salicylate of soda every two or three hours; a few doses speedily cured him. He ceased taking the drug, and was again similarly affected, about ten days after his first attack; the drug was resumed, and he was recommended to continue it for a fortnight, in ten-grain doses twice daily, after all symptoms had disappeared. He only used it, however, for two or three days. Within a short time he again became ill, and, having experienced the decidedly beneficial action of his former medicine, resumed taking it without sending for medical advice. On this occasion, evidently desiring to make assurance doubly sure, he persevered in taking twenty grains every three hours for more than a week, although the pain had almost ceased after two or three doses. He then became very deaf, had ringing noises in the ears, experienced severe headache, thirst, loss of appetite, and felt dull and heavy. The medicine was discontinued, and the unpleasant symptoms shortly vanished. It is necessary for the perfect action of salicine that the drug should be used in reduced doses for some time after acute symptoms are dispelled; I have often seen a relapse from a too early cessation of the medicine.

In muscular rheumatism, salicine affords some relief, but its action in such cases has given uncertain results in my hands. In neuralgic affections, I have seen good from salicylic acid, more especially in mixed cases of neuralgia and rheumatism; one case of neuralgia of the brachial plexus was undoubtedly cured in a very short time. From its greater solubility, and from its being more easily taken by the majority of patients, I have found salicylate of soda preferable to the salicylic acid. With the exception of the greater diaphoretic action of the former, I have been unable to discriminate between their therapeutic action.

Atrophy of Portions of the Brain after Amputation of the Arm.

At the meeting of the *Société Anatomique*, November 10th, 1876 (*Progrès Médical*, Feb. 10th, 1877), M. CHUQUET brought forward the following case: Auchne, æt. 30, a waiter, was admitted into the temporary hospital on November 4, under M. Chuquet, with all the signs of ataxo-adynamic typhoid fever, and died on the 6th, without presenting any remarkable phenomena. This man, in 1870, was a cuirassier, and received many balls at Reichshoffen, one of which broke his left arm, and necessitated amputation. Another fracture existed at the upper end of the right humerus; this limb was preserved. When the patient was brought to the hospital, a little pus flowed from a fistulous opening situated on the external part of the upper extremity of the arm. We learnt that on this side the cure had never been complete. The necropsy was in many respects remarkable. As far as the typhoid fever was concerned, the lesions were classical, and do not require attention. The arm where the amputation had been performed presented two large neuromata. The anterior one was formed by the union of the musculo-cutaneous, median, radial, and ulnar nerves. The brachial artery and the humeral veins, by their external coat, were joined to the mass, and the whole formed a lump as large as a small nut. Another smaller neuroma was formed by the radial on the posterior aspect.

On the other side, at the upper part of the humerus, were traces of an old fracture of the surgical neck; and there was a channel made by the ball, with an external and an internal orifice; the internal being the wider. In the cavity and around the fracture the tissue was lardaceous, and a fistula led to a small suppurating point. The ball was sought for fruitlessly for a long time, when, on cutting through the vertebral laminæ, a hard body was encountered, which was the long-sought ball. It had traversed the upper extremity of the humerus, had glided along the curve of the ribs, and had lodged behind the spine among the muscles, where it had set up no action, and caused no pain.

On examining the two convolutions which form the fissure of Rolando, there was manifest atrophy of one of them. It had its seat in the superior layers of the right ascending parietal convolution, not involving the fold which unites the ascending parietal convolution with that of the superior parietal lobe. A considerable space was left between this convolution and its neighbours, and the thickness of this convolution was lessened. This reached only to a third of the neighbouring convolution, or of the corresponding convolution of the opposite side, or even of the lower part of the same convolution. The atrophy extended in length exactly two centimetres. The diminution of volume of the convolution was made evident as follows: On looking at the posterior part of the brain, placed on a level with the eye, the part appeared as if depressed. On placing a flat surface on the two convolutions next to the atrophied one, between its summit and the lower aspect of the flat surface was a space of two millimetres; while on the other side the flat surface placed on the corresponding point of the ascending parietal convolution oscillated markedly in touching one or other of the neighbouring convolutions. On measuring the size of the atrophied convolution in its upper third, it was found to be 6 millimetres. The size in the middle part was 9 millimetres.

The right ascending parietal convolution measured 9 millimetres in its upper third. There was then, in a length of two centimetres, a marked atrophy both in height and thickness. The right paracentral lobe presented a diminution in volume, though relatively less considerable. Taken as a whole, its length was less by three millimetres than that of the paracentral lobe of the opposite side. The atrophy was most marked on the side corresponding with the parietal convolution.—*London Med. Record*, May 15, 1877.

Effects of Cutaneous Faradization in Hemianæsthesia of Cerebral Origin.

Dr. J. Grasset, in a memoir contained in the last part of the *Archives de Physiologie* for 1876, corroborates the remarkable observations of Vulpian on the effects of the application of induced currents of electricity to the skin in cases of hemianæsthesia of cerebral origin. Like Vulpian, M. Grasset finds that a return of sensibility takes place, and that even a condition of hyperalgesia may be established, as a result of the application of such currents to quite a limited region of the affected side, as the forearm. Not only is there a return of the ordinary tactile sensibility, but other senses that may have been affected are, temporarily at least, restored; thus, the senses of sight and taste were recovered in one case during the application of the current. This is an interesting result, confirming or elucidating the nature of the amblyopia, which in these cases does not correspond to any lesion of the fundus of the eye. The result obtained by the electrization of one forearm can be equally satisfactorily obtained by the application of electricity to any other circumscribed region of the anaesthetized side. The same result may also be obtained by electrifying, not the affected side, but a limited region of the sound side. The sensibility of the affected side is always exaggerated and rendered normal, and a condition of hyperalgesia is established in it. The degree of hyperalgesia developed in the paralyzed side is always very considerable during the first day of applying the electricity, but the second day it is less marked, and the third day it is scarcely perceptible—that is to say, M. Grasset explains, the electrization always restores the sensibility of the anaesthetized side, but only causes well-marked hyperalgesia on the first day.—*Lancet*, March 24, 1877.

The Trembling in Parkinson's Disease (*Paralysis Agitans*).

M. CHARCOT, in a recent lecture on *paralysis agitans* (*Progrès Medical*, December 2, 1876), particularly insisted on the following points.

1. The name *paralysis agitans* is incorrect. The term *paralysis* cannot be properly applied to an affection in which the muscular power is preserved for a long time. The affix *agitâns* is not absolutely correct, because the trembling is absent in some cases in which the correctness of the diagnosis cannot be questioned. He proposes to call the affection *Parkinson's disease*, after the English physician who first drew serious attention to it.

2. M. Charcot maintains that, as a rule, the head and neck do not take part in the tremor which affects the limbs and trunk. In those cases in which the head is observed to tremble, oscillations are evidently communicated to it from the trunk. To prove this, he fastened a small stick, to the end of which a feather was attached, to the forehead of a patient. When the patient was left alone, the feather was in a state of unceasing agitation; but when the movements of the upper limbs were arrested in some way, as by forcibly elevating the arms and trunk, the feather was perfectly still. This experiment was tried with the same results on several patients.

3. M. Charcot laid particular stress on the fact that tremor is not a necessary symptom of Parkinson's disease. There is a form of the disease in which the tremor is so slight that it is not perceived by the patient, or in which it does not appear till after three or four years, or in which it is even entirely absent. M. Charcot gave in detail the histories of two cases in which all the symptoms of the affection were present, and had attained considerable intensity, with the exception of the tremor. This was entirely absent in one of the cases, and in the other was confined to a slight trembling of the left hand, of which the patient himself was entirely unaware. Even this slight tremor was of recent development, while the other symptoms of the disease had existed for four years.

In some cases, in consequence of the stiff attitude of the patients, of the extreme slowness of the movements, the expressions of hebetude, caused by the immobility of the features, the involuntary flow of saliva, and the interference with speech, the affection has been mistaken for softening of the brain. Usually, when this error has been made, the rigidity was especially marked on one side. The intellectual faculties, however, remain intact in Parkinson's disease.—*London Medical Record*, March 15, 1877.

Secondary Degenerations of the Spinal Cord in Cases of Critical Lesions of the Brain.

Thanks especially to M. Charcot, we are now familiarized with the possibility of spinal cord disease consecutive to brain disease. This great teacher has the rare felicity of gathering around him fellow-workers who carry on and extend by microscopic examination and otherwise his investigations in nervous diseases. M. Pitres, one of his pupils, has verified in a series of cases M. Charcot's contention that these secondary degenerations of the spinal cord have special relation to lesions of the motor regions of the cortex (*Progrès Médical*, February 17, 1877). A brief summary may be given of the five cases recorded by M. Pitres:—

1. A patient, aged seventy-six, admitted to the Salpêtrière with pneumonia; no hemiplegia. At the post-mortem a large area of old softening was found in the right hemisphere. It had destroyed the posterior half of the island of Reil, the two posterior thirds of the inferior parietal lobule, and the posterior half of the first and of the second temporal convolutions. It will be observed that the softening did not attack the motor cortical region. The remainder of the brain healthy, and the spinal cord did not manifest, either to naked-eye or microscopic examination, any secondary degeneration.

2. A patient, aged eighty-one, admitted for atrophic scirrhus of the breast; demented; no hemiplegia. Post-mortem, there was fibroid obliteration of the trunk of the left posterior cerebral artery, and an old focus of yellow softening in the first and second spheno-occipital convolutions. Corpora striata healthy; no changes in the rest of the brain or in the spinal cord.

3. Patient, aged eighteen, the subject of left hemiplegia consecutive on convulsions which first came on when six years old, during convalescence from measles; partial epilepsy; spasmodic contraction of the limbs of the left side. Death in the epileptic condition, after a series of 297 fits. Post-mortem, a plâque of cerebral atrophy in front of the right fissure of Rolando, involving the ascending frontal and part of the first and second frontal convolutions. The internal capsule of the right side less than that of the left; the same thing held with respect to the right cerebral peduncle, the right half of the pons, and the right anterior pyramid. A longitudinal band of sclerosis occupied the hinder part of the left lateral column of the cord. Besides this, in the cervical region there was a small sclerosed bundle in the internal part of the right anterior column.

4. Patient aged seventy-nine. Right hemiplegia dating from four years of age; spasmodic contraction of the right limbs; sensation preserved. At the autopsy, some old yellow softening, which had destroyed the lower two-thirds of the ascending parietal of the left side. The other parts of the cortex and the great ganglia healthy, but the left half of the pons smaller than the right. Gray atrophy of the left anterior pyramid prolonged down the right lateral column, showing well-marked sclerosis on microscopic examination.

5. Patient aged ten. Right hemiplegia occurring as sequel to infantile convulsions; partial epilepsy; paresis with contracture of the right limbs; sensation preserved. At the autopsy, softening and atrophy of the paracentral lobule and of the quadrate lobule. The softening extended scarcely a centimetre into the upper end of the ascending frontal and of the ascending parietal convolutions. Ganglia intact. Sclerosis of the posterior part of the right lateral column.

In summing up these cases, M. Pitres points out that we have to do with lesions of the cortex, leaving the great ganglia intact. In the first two cases, where the cord was healthy, although the cortical lesions were extensive they did not involve the motor region of the cortex, and there was no hemiplegia. In the three other cases the cerebral lesions were much less extensive, but they were situated in the motor cortical region, and they had determined at the same time both a permanent damage to motility and secondary degeneration of the cord. In workhouse infirmary, as well as in general hospital post-mortems, not infrequently large areas of cerebral softening are found to which the symptoms during life gave no clue. In view of the above researches, it is exceedingly desirable that the locality of these areas should be carefully recorded, and, if possible, that a microscopic examination should be made of the spinal cord.—*Med. Times and Gaz.*, March 24, 1877.

Severe Diphtheritic Paralysis cured by the Continuous Current.

Professor PETER, of the Hôpital La Pitié, has had recently under his care a patient affected with paralysis following very acute diphtheria, which is remarkable, not only on account of its severity, but from the success of the treatment employed (*Journal de Médecine et de Chirurgie Pratique*, March, 1877). The woman was taken, about the middle of last November, with a slight sore throat, probably diphtheritic from the account which she gave of it, which lasted for about twelve days, but did not oblige her to stop work. About a month after the commencement of this attack, on December 20, after a violent fit of passion, the patient felt some signs of paralysis. Paralysis of the soft palate and of the pharynx was complete; food returned by the nose, and swallowing was impossible. Articulation was abolished. There was some marked weakness of sight, and a slight degree of amblyopia. The woman remained thus during seventeen days without taking any food. She was brought to the hospital on January 4, in a very enfeebled state. Œsophageal catheterism was practised, and nourishment given by this means, which had to be continued for five weeks. It was not till fifteen days after her admission that electrization was commenced on account of want of the necessary apparatus. The continuous current was employed, applied to the neck for about an hour each day. At the end of three weeks the symptoms of paralysis amended, the patient commenced to eat, and the voice returned at the same time. When the case was reported, the cure was all but complete; but the treatment was continued because the voice was still affected, and liquids often returned by the nasal fossæ at the moment of deglutition.

This case is remarkable on more than one account. We see in the first place, that this severe paralysis succeeded to a sore throat so mild that the patient did not even stop work. The gravity of the paralysis is also quite exceptional. It is extremely rare to see the paralysis not only involving the soft palate, but even all the pharyngeal muscles, and to be so complete as to abolish its functions. It is also certain that, if this woman had not been fed by means of the œsophageal sound, she would have died of starvation, since the paralysis lasted for some weeks after this mode of alimentation had been begun. Lastly, the good effects of this treatment must be noticed. The continuous current constitutes, indeed, the best method of treatment for paralysis following diphtheria.—*London Med. Record*, April 15, 1877.

The Râle Mouillé.

Dr. MILLON alleges that he has ascertained the presence of a special *râle* in pulmonary affections, which he calls *râle mouillé*, and which has, in his opinion, the highest importance from the point of view of diagnosis and prognosis. As a diagnostic sign, it denotes the passage of pneumonia to the third stage; that is to say, the transition of red hepatization to gray softening and to purulent infiltration of the pulmonary tissue. As a prognostic character, this sign is a certain and invariable presage of death within a very short time; in fact, patients succumb within ten or twelve hours after its appearance. The following are the characters of this *râle:* It is a moist *râle*, in small bubbles of equal extent. These bubbles are a little larger than those of the fine crepitant *râle*. They have some points of resemblance to the mucous *râles* and some cavernous *râles*, but they differ essentially from them in the following respects. First, the *râle mouillé* is confined exclusively to inspiration. Secondly, it is much softer and smoother than the mucous and cavernous *râles*. Thirdly, the opening or rupture of the bubbles occurs isochronously with inspiration, and produces a sensation quite peculiar and quite homogeneous. Fourthly, there are not, as in the mucous *râle*, large and small bubbles, but all are of the same volume.—*Brit. Med. Journ.*, March 31, 1877.

Aphonic Pectoriloquy.

Dr. Hermet, in his *Thèse de Paris* (7th Dec. 1876) has studied the new indication, given first by Baccelli, then by Gueneau de Mussy, for the diagnosis of the nature of pleural effusions, and has proved its presence in pulmonary affections. The *résumé* of this memoir is as follows: Aphonic pectoriloquy is the clear distinction of the voice, when the patient auscultated speaks in a low voice. It exists in all the pulmonary affections associated with induration; induration is the condition *sine quâ non* of its production. Thus we hear it in the first stage of pulmonary phthisis, in the second stage of pneumonia; if, in the latter case, the *souffle* persist. It is also heard in the excavation stage of pulmonary phthisis, but with a peculiar sound. In the first stage of phthisis, when it can only be suspected by antecedents and certain functional troubles, aphonic pectoriloquy may possess a real diagnostic value. It is also heard in pleural effusions, and in pneumothorax. Compression of the pulmonary tissue by effusion in the case of pleurisy, and by air, or the liquid, or both together, in the case of pneumothorax, may, perhaps, explain the mechanism of its production. Finally, as MM. Baccelli and Gueneau de Mussy have proved, it helps in making the diagnosis of the nature of pleural effusions; when aphonic pectoriloquy exists, the effusion is serous; where it is wanting, the effusion is purulent.—*London Med. Record*, April 15, 1877.

Diagnosis of Aneurisms of the Aorta by the Laryngoscope.

At the Medical Congress held in the autumn of last year, at Turin, Dr. Zawerthal (*Archives de Médecine*, Jan. 1877), after detailing the various symptoms that accompany aortic manifestation, and dwelling on their little diagnostic value, called the attention of the meeting to the deductions that can be made in such cases from an inspection of the upper part of the respiratory passages by the aid of the laryngoscope. One of these signs, long known, consists in the paralysis of one or both vocal cords, consequent on pressure applied to the recurrent nerve, the other, recently discovered by Schrötter, and investigated by Zawerthal, consists in a rhythmical introflexion of the upper part of the trachea, readily perceptible under the laryngoscope. The reading of the paper gave rise to a very animated discussion.—*Practitioner*, April, 1877.

A Case of Diaphragmatic Hernia, with Incarceration and Perforation of the Stomach.

In No. 13 of the *Berliner Klinische Wochenscrift* for 1877 (March 26th), Dr. Klingelhoffer, of Frankfort-on-the-Main, records a case of this accident in a young fellow, aged 22, who had previously enjoyed very good health, with the exception of an attack of pneumonia for six weeks in February, 1876. But it appeared, on cross-questioning, that he had for some time suffered from nausea and hiccup after meals. The present attack came on the 6th August, 1876, after a very hearty meal, which was followed by violent pain in the belly, and vomiting. He was carried home, and complained of difficulty in breathing. On examination, he was found twisting about in bed, complaining of violent pains in the pit of the stomach, the pulse somewhat quickened, extremities warm, temperature not above normal, the liver-dulness apparently normal also. The percussion-note was clear over both lungs, specially clear and tympanic in tone on the left side. No cardiac dulness could be made out, but the heart's impulse was very plain in the epigastrium. On auscultation, the cardiac sounds were heard best on the right of the sternum. Over the whole right lung was loud puerile breathing, on the left side no breath-sound, and no metallic tinkling. The intercostal spaces, clearly seen on the right side, were not so on the left. The left side felt decidedly distended. The man had swallowed a quantity of whole pepper and some coffee. These were soon vomited up. Pneumo-thorax was diagnosed, supposed to be connected with the previous attack of pneumonia. Morphia was injected (one-sixth of a grain), and more ordered in powder. After a very restless night, he died about 7 A. M. next morning, about sixteen or seventeen hours after the attack. At the *post-mortem* examination it was found that the whole stomach, the spleen, a great part of the greater omentum, and about ten inches of the large intestine [descending colon] had passed into the left thorax, through a wide opening in the diaphragm. There was no trace of hernial sac; below and in front was the great omentum, then came the large intestine, then the stomach, with copious contents, as well as gas, distending it enormously, and behind this the spleen. The lung lay free, but compressed to about the size of a man's fist. In the pleural cavity a blackish, pultaceous, nasty smelling fluid, clearly extravasated from the stomach was found; and on lifting the stomach a small perforation, scarcely as large as a lentil-seed, was discovered, through which this fluid had escaped. The great omentum was found to be adherent to the opening in the diaphragm. The œsophagus was sharply bent double from its own opening, around the abnormal opening into which the stomach had been drawn. On account of its distension the stomach had to be opened and emptied before it could be replaced; the colon had been returned into the abdomen easily. The abnormal opening was found in the muscular part of the left side of the diaphragm, about three and a quarter inches in front of the œsophageal opening, of oval shape, and about three-quarter inches long, and two inches wide; its posterior margin was free, the anterior adherent to the great omentum. Owing to the perforation of the stomach there was pneumo-thorax, from gas escaping from that organ. There was considerable emphysema of the cutaneous cellular tissue (noticed immediately after death), and also of the serous covering of the stomach. There was a smooth-edged fissure-shaped opening in the diaphragmatic pleura, but it was a little doubtful whether that was produced in the section. Owing to decomposition, it was difficult to say whether the opening in the stomach was an ulcer of very long standing or not. The history seemed to render this impossible.—*Lond. Med. Record*, May 15, 1877.

Management of the Bowels in Enteric Fever.

At a recent meeting of the College of Physicians of Ireland (*British Med. Journ.*, April 7, 1877) Dr. T. W. GRIMSHAW read a paper on this subject, illustrated by brief notes of four cases, in which injury had been done by the injudicious use of astringent or purgative medicine. He considered that the main point to be attended to is to keep the bowels free, but not too free, and to avoid as much as possible purgatives or astringents. The bowels may be moved four times in the twenty-four hours with advantage to the patient, and they should never be allowed to remain confined for more than forty-eight hours. The measures he took to promote these objects were generally connected merely with regulation of diet. In diarrhœa, the patient should be fed on boiled milk, with or without saccharated lime-water. Beef-tea should be avoided. Dilute sulphuric acid, morphia or laudanum, and (in extreme diarrhœa) pills of acetate of lead and opium, were the medicines on which he relied. Linseed-meal poultices and stupes of turpentine or mustard were useful auxiliaries, where pain or tenderness was complained of. The treatment of constipation was a more easy affair. He employed a single drug—castor oil—and usually combined it with opium. He seldom gave more than a teaspoonful for a dose; and in many cases but half that amount. In the early stage of the disease, when he found that the bowels had been confined for some days before the patient came under treatment, he at once gave a dose of castor oil. This not only benefited the patient, but in a doubtful case assisted the diagnosis by often producing a characteristic evacuation. Great caution must always be observed in giving meat in early convalescence, as it is likely to produce diarrhœa. He preferred here to begin with chicken broth, then chicken, and lastly mutton. If a rise in temperature occur after a change of diet, diarrhœa might be expected and should not be waited for, but the meat at once discontinued and the milk resumed. In cases of hemorrhage, he had found ergot the most useful remedy, and so far he had never lost an enteric fever case by hemorrhage.

Mr. **Hayden** agreed with the author of the paper that the administration of saline purgatives was one of the greatest evils in enteric fever. Blistering the ileo-cæcal region, sulphurous acid with laudanum, and morsels of ice were useful remedies. The regulation of diet was all-important.

Dr. **Lyons** thought that purgatives by the mouth should be tabooed in enteric fever. Enemata were strongly to be recommended. A decoction of chamomile flowers, with the addition of half an ounce of turpentine and the yolk of an egg, had long been used for that purpose in the Hardwicke Hospital. He had frequently checked diarrhœa by means of an enema, because it removed matter that nature was struggling to get rid of, there being from eighteen to twenty inches of intestine covered with diseased points, over which everything had to pass. He had not the slightest hesitation in saying, from an experience of many thousands of cases at home and abroad, that it would be far better to have no motions of the bowels in the day at all, after the preliminary diarrhœa, than to have three or four, as Dr. Grimshaw apparently thought unobjectionable. Milk, eggs, arrowroot, lime-water, and Carrara-water were quite sufficient to tide the patient over a long period of the disease. Dr. Doyle remarked that Niemeyer recommended five-grain doses of calomel, and he had himself used it with good effect where the disease set in with constipation.

Dr. **James Little** thought that, where the head was much threatened in the early stages of the disease, purgatives were sometimes required. Before the ninth day, the patient could often be relieved of his headache by five-grain doses of calomel. Later in the fever, when the abdomen was tympanitic or distended, he had given a teaspoonful of castor oil and turpentine. As to diarrhœa, if the cause of it could be removed, it was better than using astringents. Sulphurous acid, according to his experience, would prevent diarrhœa from setting in, probably arresting decomposition, but, once it had set in, it would not arrest. Of all the remedies that he had heard of for controlling diarrhœa in typhoid fever, the best was one for which he was indebted to Dr. Hudson, and which, he thought, was infinitely superior to any other astringent in respect of safety and general satisfactory character. It consisted of a pill composed of a sixth of a grain of opium, the same proportion of carbolic acid, and three grains of bismuth. He had found the application of two or three leeches over the ileo-cæcal region to be of benefit, and blistering was not unfrequently followed by mitigation of the irritation of the bowel.

The Treatment of Catarrhal Jaundice by Large Injections of Water at Low Temperatures.

Dr. EDWARD KRULL, of Güstrow, in Mecklenburg, writes to the *Berliner Klinische Wochenschrift*, of March 19, 1877 (No. 12), a strong recommendation of a novel plan of treatment of catarrhal jaundice. He was led to try this plan by the slowness and inefficiency of most of the customary modes of treatment. He injects, by means of an irrigator, and slowly, between thirty-five and seventy ounces of water, at about 12° Reaumur (or 59° Fahrenheit). On repeating the injections the temperature is raised by degrees to 18° R. (= 72.5° F.) The quantity is regulated by the ability of the patients to bear it. He encourages them to retain the fluid as long as possible. This injection, by means of an irrigator, is done daily; but it is rare, he says, to find more than seven injections necessary. In the majority of his cases there was a reappearance of bile in the stools after the second injection. Some of his patients had suffered a long time—one of them nearly one year and a half. This plan almost immediately relieves the gastric sufferings and dyspepsia of the patients, and brings back the appetite. He attributes the improvement and cure to a reflex action on the biliary passages, gall-bladder, and liver, brought about by the increased peristaltic action of the bowels. [The reporter has found the use of frequent large clysters, combined with warm baths, of the greatest utility in catarrhal jaundice; he believes that the use of the irrigators is likely to be a great improvement on this plan.—*Rep.*] *Lond. Med. Record*, May 15, 1877.

Effects of Ligature of the Renal Vein.

BUCHWALD and LITTON have described experiments performed with a view to demonstrate the effects of passive congestion and thrombosis of the renal veins. Their results are interesting, especially as they were able to trace the effects of such obstruction for periods varying from two to eight weeks. At first the affected kidney increases in size, the renal epithelium rapidly degenerates; hemorrhages occur beneath the capsule and into the Malpighian tufts, and thrombi form in the renal veins. The capillaries outside the glomeruli are very dilated, those of the interior are, on the contrary, much narrowed. The swelling, œdema, hemorrhages, and fatty degeneration, increase hourly, but no inflammatory changes ensue. About the sixth day after ligature, the kidney is noticed to be smaller than its fellow, and its diminution in size continues to proceed rather rapidly, and on the eighteenth day the difference in size is very evident, the tubules in the cortical portion of the affected organ being filled with degenerated epithelium. There is no trace of any interstitial nephritis, and an interesting feature is to be found in the glomeruli remaining quite intact, whilst the surrounding tubules have disappeared—a fact explained by the authors on the hypothesis that other channels than the radicles of the renal vein exist for the outflow of blood by the communication between the efferent venules and the capsular veins of the kidney. Indeed, in animals that long survive the operation, a considerable venous network is found between the capsule of the kidney and the vena cava, or the suprarenal or phrenic veins. The experiments were undertaken with a view to clear up the pathological sequence in two cases of fatty degeneration of the heart, in which, during life, the renal symptoms were those of congestion, but after death the kidneys were found to be in an advanced stage of cirrhosis. The results of the experiments, as bearing on these cases, showed that probably the interstitial change in the kidneys was the primary lesion, then fatty degeneration of the heart, and, lastly, passive venous congestion of the kidneys.—*Lancet*, April 14, 1877.

Traumatic Albuminuria.

Under this heading M. TERILLON records in the March number of the *Revue Mensuelle* the following interesting case: The patient, twenty-nine years of age, falling from a third floor when intoxicated, sustained a compound fracture of the left radius and ulna just above the wrist, with marked backward displacement of the lower fragment of the radius. He was admitted on the 3d of June into Saint Antoine Hospital, and in the night tore off the bandages and dressing in an attack of alcoholic delirium. Diffuse cellulitis followed, with much deep-seated suppuration. On July 5th, the bones, the radius particularly, were found to be denuded, and inflammatory œdema involved the upper arm as high as the shoulder. In spite of energetic administration of tonics, and lessening of the quantity of discharge, the patient remained very prostrate; and on the 10th of July there was noticed to be puffiness of the face and slight œdema of the ankles. The urine was examined, and found to contain a considerable quantity of albumen. On the 11th there was general anasarca, the albuminuria was excessive, and the patient in a very weak condition. M. Terillon felt that the only chance of saving the life of the patient was by resorting to amputation, and this was performed next day in the lower third of the arm through the inflamed and œdematous tissues. Examination of the forearm showed entire necrosis of the radius and ulna, which were bathed in pus. The dropsy and albuminuria rapidly subsided, and the general condition as rapidly improved. The progress of the case was, however, retarded by a recurrence of the renal symptoms on the 23d of July, coincidentally with increased discharge from the stump. On the 24th and 25th there was suppression of urine, and the patient had an attack of uræmia, becoming profoundly comatose. He rallied from this attack, and on the 26th the urine, although scanty, was free from albumen. The stump assumed a more healthy appearance, and on the 2d of August he was able to get up. On the 15th of August there was again a small quantity of albumen to be found in the urine, and a small abscess of the external ear, which had been forming a few days, was opened. From that date convalescence was uninterrupted, and he left the hospital completely cured on the 8th of September. He was seen several times between that date and the 25th of December, and was always found in good health, and his urine perfectly free from albumen.

M. Terrillon, in commenting on the case, states it to be his intention to publish, at some future date, some observations upon albuminuria sequential to surgical lesions. He justifies the amputation in the present case by the extensive disorganization of the limb removed, the apparently recent date of the renal lesion, and the rapid decline in the strength of the patient from the exhausting suppuration. He acknowledges the gravity of performing operations when there is albumen present in the urine, but in viewing the sequence of events, and taking into consideration the previously healthy condition of the patient, he concluded that the nephritis was dependent upon the local suppuration and necrosis. The rapidity with which the anasarca and the albuminuria disappeared after the removal of the limb favoured this view, but the grave and sudden recurrence of the albuminuria, with prolonged uræmic coma, is inexplicable. M. Verneuil, who is one of the editors of the journal in which this paper appears, and who, as is well known, is one of the most ardent teachers of the inter-relations of traumatism and diathesis, appends a note at the foot of the article in which he points out that, besides cases of albuminuria antecedent to injuries (by far the most serious cases for surgical treatment), there are cases of inflammatory surgical affections, as cellulitis, erysipelas, anthrax, osteitis, acute periostitis, etc., in which albuminuria may be primarily started in subjects who, before the onset of the local disease, presented no symptoms of renal lesion. The distinction is a well-recognized one, but cannot be too prominently insisted upon.—*Lancet*, May 5, 1877.

Anasarca treated by Drainage Tubes.

Dr. SOUTHEY, at a late meeting of the Clinical Society of London (*Lancet*, May 5, 1877), read notes of a case of parenchymatous nephritis, in which the anasarca was combated by drainage tubes. The capillary drainage tubes and tiny silver canulas employed by him in the treatment of the general dropsy were exhibited by him. The canulas were scarcely larger than the ordinary subcutaneous injecting-needles, and were introduced by a fine trocar. They terminated with a little bulbous extremity, over which the capillary India-rubber tube was drawn after its introduction into dropsical limbs. A tiny thread and small piece of adhesive plaster sufficed to maintain the canula in the skin, and the connected drainage-tube was conducted below the patient and into a pan beneath the bed. The large amount of serous fluid which might thus be withdrawn in dropsical subjects from a single prick in each leg was quite surprising. The fluid continued to drop away for as many hours as the tube was retained *in situ*, and without any discomfort to the patient. No escape of fluid took place beside the canula. The whole was conducted outside the bed, and several pints usually thus drained away from highly dropsical subjects each twenty-four hours. The recommendations were manifold of this exceedingly simple and cleanly method of relieving anasarca when this was extreme. 1. Instead of several needle-pricks, all of which were painful and likely to form troublesome sores and centres for erysipelas to depart from, one, or at most two—only one for each limb—were needed. 2. The skin round about the puncture was not macerated by the oozing serum, nor irritated by it. 3. The patient was kept dry and warm and clean in bed. 4. The relief obtained was more speedy as well as more thorough. 5. Should the escape of fluid prove too rapid and become attended by circulatory disturbance in the dropsical limbs, or by uræmic symptoms, the quantity drawn off could be easily regulated, controlled, or temporarily arrested, by a tiny clamp placed upon the tube. 6. The serous fluid, which in cases of renal anasarca contained very large amounts of urea, could be tested for this, and the quantity thus escaping be exactly ascertained. Thus, in the particular case brought forward by Dr. Southey, the average amount of urea which was thus excreted amounted to 4.7 grammes, or 72.56 grains for twenty-four hours. In point of fact, Dr. Southey had drawn off as much as fourteen pints of serous dropsical fluid in twenty hours from a patient by two such tubes; and, in answer to questions put to him, he was able to state that he had seen no inconvenience arise from the maintenance of the canula in the skin in the same situation for forty-eight hours; the prick-hole closed at once and without ulcerating when it was withdrawn; and it was his belief that this mode of treating extreme and unyielding anasarca, from whatever cause arising, would come to be very widely adopted. The whole apparatus was as simple as it was easy of application, and entirely efficacious. In reply to Mr. Howse, Dr. Southey said that the calf of the leg was the best place for the puncture; and the canula, which was provided with a bulbous extremity, remained in place in the cellular tissue. The instrument had been made for him by Mr. Ferguson.

Pityriasis Rubra Universalis.

Dr. Hebra, Jr., describes in the *Archiv für Dermatologie und Syphilis*, 1876, 4 heft, the case of a man, 38 years old, suffering from the above disease, who was admitted into Hebra's clinic, in July, 1872. When eight years old he had had variola, and from that time the skin was never quite normal, becoming unusally red under the influence of warmth, and blue when exposed to cold. He was apprenticed at fifteen, and the colour of his skin was then a subject of remark amongst his fellow workmen. The abnormal appearance of the skin gradually increased, and two years before admission to the hospital he became unable to work, tension of the skin preventing free movement of the extremities. Some months previously, he had observed scales on the legs, and in eight months they existed over the whole surface. Six months later, the hair of the head, beard, and finally of the pubes, fell out. On his admission, he presented all the appearances described in Hebra's work, with the addition, that in some parts the skin was fissured. He was three and a half years under treatment, and died in the hospital. During this time, the only change that took place in the aspect of the skin was that, instead of the original bright red colour, the tint became a dark brown-red, and on pressure with the finger, the colour did not completely disappear.

In March, 1874, he had an attack of pneumonia. Whilst the attack lasted, the redness and scaling diminished; but they reappeared as he recovered. He had another attack of pneumonia in July, 1875, which left tubercular infiltration behind it, and he died of tubercular disease of the lungs and intestine in July, 1875. The treatment employed had no influence on the course of the disease. The different external remedies tried were, applications of cod-liver oil, water-baths during the whole day (the patient returning to his bed at night), an India-rubber suit of clothing, and precipitate and diachylon ointments. These were continued separately, over periods exceeding one hundred days each. Benzoin was tried, but, after three weeks, had to be discontinued, on account of the discomfort it produced.

He had two courses of arsenic. Pills were given containing one-tenth of a grain of arsenious acid each; at first three daily, then increased weekly until he took twelve daily, and again diminished to three daily. Each course was continued until he had taken 2000 pills (200 grains of arsenic), there being an interval of two years between the courses. He thus took in all 400 grains of arsenic. No constitutional disturbance was produced by the metal.

The microscopic examination of the skin after death showed absence of the papillary layer and sweat-glands, few traces of the sebaceous glands, and a considerable quantity of pigment-granules.

A second case is that of a man, aged 53. A year before admission he was affected with redness and scaliness of the skin, attended with itching, the disease rapidly extending over the whole surface. When admitted, he was suffering from tuberculosis, and he died of this disease within the first month of treatment. All the organs of the skin were normal. There was a large amount of cell-infiltration, similar to that found in other skin affections.

In a third case the outbreak of the disease was observed. A woman, 64 years old, was admitted on account of impetiginous eczema of the scalp. One day she complained of feeling ill and sleepless, the temperature being found abnormally high. After two days the whole skin became a deep red, the fever and loss of appetite continuing. Within a week the diagnosis was made. The slight swelling that accompanied the outbreak of the disease diminished, but the desquamation of epidermic scales which adhered to the surface continued. She remained two months under observation, and then left the hospital.—*London Med. Record*, April 15, 1877.

SURGERY.

Lymphadenoma.

At the meeting of the Société de Chirurgie, on Feb. 21st, M. TRÉLAT read a paper dealing with the surgical aspect of lymphadenoma, or, more properly speaking, of lymphosarcoma. He stated that in 1872 he had under his care, at La Pitié Hospital, a man, thirty-six years of age, suffering from a tumour of slow growth on the right side of the neck, with enlargement of the neighbouring glands, and a small tumour in the thigh. The removal of the tumour in the neck was followed by recurrence, and the patient sank after the second operation, and there was found disseminated in the vertebræ, sternum, spleen, and liver, a large number of growths of lymphomatous nature. The lesson derived from this case by M. Trélat was to decline to operate in all cases of lymphadenoma in which any suspicion of visceral implication might be entertained. However, last year another patient came to him, apparently in robust health, fifty-five years of age, presenting a tumour of the left testicle. He stated that when twelve years old he received a blow on the scrotum, but thought nothing of it until he was declared unfit for military service on account of some malformation of the left testicle. He married, and became the father of fourteen children, and it was not until he was forty-eight years of age that he first noticed a slight swelling of the left testicle, a swelling which very slowly increased, so that he did not come to the hospital until seven years after. The tumour was smooth, firm, slightly painful, and compressed the testis and epididymis, and M. Trélat came to the conclusion that it was a sarcoma of slow growth. He accordingly performed castration; a small tumour upon one of the eyebrows being considered to be probably of lipomatous nature, and nothing to do with the testicular growth. However, the disease recurred in the genitals, the right testis became the seat of nodular and painful enlargement, and a fresh growth appeared on the eyebrow by the side of the former, and the patient somewhat rapidly emaciated and died. Tumours of lymphadenomatous type (similar to the primary growth in the left testis) were found in the right frontal region, sternum, and spine, and in the mesentery, liver, and spleen. M. Trélat asked whether it were possible to diagnose such cases, and gave it as his opinion that previous to resorting to ablation small portions of such growths should be excised for microscopical examination, and if they were of lymphomatous nature their ablation should not be attempted. It was pointed out in the discussion, however—and here we think most surgeons and pathologists will agree—that there are forms of lymphadenoma which are malignant, and others that are truly benign, but it was not said whether there were any definite histological criteria for discriminating between the two varieties. M. Trélat also added that the malignant forms were peculiar to adults, and that they did not always arise primarily in lymphatic glands.—*Lancet*, April 14, 1877.

Epithelial Cancer of the Lips and Face.

Professor BUSCH, of Bonn, in a communication to the Congress of German Surgeons, began by stating the theory of Thiersch, according to which this form of cancer originates in a disturbance of the equilibrium between the epidermis and the connective tissue. Cancer of the scrotum and of the breast would also come under this head. The majority of such cancers occur in the face and lips. The disease originates in an induration, which grows from the surface inwards, often no notice being taken of it at the commencement. It looks at first quite harmless, and is, especially on the lips, scarcely visible when it commences. Chronic cases begin with the growth of a horny substance on the skin. When this is removed, a bleeding surface is found. After removing this with the blade of a knife, a number of roots are seen penetrating into the skin. Still deeper, small scales of epidermis are discovered, pierced by the epithelium roots, which penetrate deeper and deeper into the tissues. This progress is mostly observed on the skin of the aged, and the origin of the disease is very often proved to be of an external, perhaps of a chemical nature. Whether the presence of such a layer of horny substance is alone sufficient to produce cancer, is a question not yet settled. After removing this horny substance by softening it with a solution of soda, and then keeping the place well moistened and clean with the same fluid, the slight excavation will be seen to disappear, and even the epidermis will grow again. Professor Volkmann some time ago pointed out the favourable influence of cleanliness in similar affections. Professor Busch removes at first the horny substance, and, after the extirpation of the cancer, directs that the spot and its surroundings should be well washed with the solution of soda. He lays great stress upon this, for, on operating on even the worst cases of this form of cancer, one can scarcely tell which are the sound and which the diseased portions. A patient, who had been cured of rodent ulcer, discontinued these washings after a year. But a few months later the scab reappeared, and under it the swollen surface. Another case is still more instructive. After extirpation of a cancer, the washings were soon neglected. Immediately afterwards a new scab formed on the lip. Washing was commenced again, and again discontinued. Finally, a new extirpation became necessary. Washing of the lips with the alkaline lotion is efficacious only at the beginning of a case; it has been observed to be of the greatest service in cases of rodent ulcer of the face. There can be no doubt that the moist morphœa and many other diseases of the skin are to be considered as the beginnings of epithelioma. Of special importance in this class of cases is the cancer in the breasts of elderly women. Deposits of horny substance are very often observed, and beneath them enlarged milk-vessels; and it is extremely likely that cancer of the mamma very often takes its origin from these deposits. Where there is hereditary predisposition, Professor Busch recommends extirpation of such deposits, which are often apt to cause injurious pressure. He has observed the development of cancer out of a simple horny deposit. The disease begins with the obstruction of the milk-vessels by epithelial masses, and its progress is to be arrested by preventing these obstructions from taking place. Professor Busch mentioned a case in which thick layers of the epidermis covered the nipple. After dissolving them with a solution of soda, he succeeded, by using slight pressure, in removing from the openings of the milk-canals diminutive white plugs, consisting of epithelium in a state of fatty degeneration. This treatment was continued for three months, and during this time an induration that had some time previously been discovered in the breast also disappeared. Such success, however, is to be expected only in recent cases. Professor Busch's communication concluded with the following propositions: 1. The beginning of a destructive epithelial cancer is in many cases a simple epithelial deposit on the surface. 2. The disease in this state is to be cured by continued local treatment (washing with the soda solution). 3. This treatment may also be successful in some favourable cases of carcinoma of the skin of the face, even where ulcers already exist. 4. In many cases recurrence after extirpation may be prevented by washing the scar and its surroundings with alkaline lotion. 5. A very desirable precaution is the removal of the layers of epithelium that are sometimes to be found on the breasts of elderly females.—*Med. Examiner*, April 26, 1877.

Extirpation of the Larynx.

M. PAUL BERGER, in noticing (*Revue des Sciences Médicales*) the latest contributions to the literature of this subject, states that the operation of complete removal of the larynx has now been performed nine times—viz., twice by Billroth and Maas respectively, and once each by Heine, Schmidt, Schoenborn, Bottini, and Langenbeck. In all these cases the operation was undertaken for malignant disease. A fatal result is recorded for three of these cases: in two from pneumonia, one (Billroth's) on the fourth, and the other (Maas's) on the fourteenth day after operation; in a third case (Schoenborn's), pulmonary gangrene, following pneumonia, led to death on the fourth day after operation. In Schmidt's case, death was attributed to collapse on the sixth day. In Billroth's first case, and in Heine's case, the fatal result was due to recurrence of the disease for which the operation was undertaken, in the one the patient lived three months, and in the other six, after the ablation. Lastly, as regards the three successful cases, Bottini's patient was living and in good health six months after the operation; but as to the remaining two patients, the sequel of their cases has yet to be published. The operation of partial extirpation or resection of the larynx has been once performed by Heine in a case of syphilitic stricture; the anterior half of the thyroid cartilage was removed, but the patient lived only eleven months, his death being due to an extension of the disease. M. Berger does not regard these results as encouraging; but it must be remembered that the operation, although bold, may yet be justifiable, and a fortunate result even in one case out of ten is not wholly to be disregarded.—*Lancet*, March 3, 1877.

Malignant Disease of the Œsophagus; Gastrostomy; Death.

The value of the subjoined record is not in any degree diminished by the fact that the operation of gastrostomy was not successful. The advocates of this operative procedure may justly urge that, although at the time when the operation was performed the case appeared to be in every respect suitable, the amount of mischief, as shown at the post-mortem examination, was so great as to render recovery impossible. The operation has proved permanently successful with M. Verneuil, of Paris (see the number of this Journal for Jan. last, page 255), and was practically so in a case recorded in the *Lancet* of May 15th, 1875, under the care of Mr. Sydney Jones.

Robert B——, aged thirty-nine, a coach painter, whose general health had always been good, was admitted into Mr. CALLENDER's ward at St. Bartholomew's Hospital on the 16th of October, 1876. He first noticed a difficulty in swallowing about February, and since August 12th he had been quite unable to swallow solid food. There was no history of his having taken any corrosive. He had never vomited blood. A small bougie had been passed twice a week for two months before his admission, and on the last two occasions some blood had followed the removal of the instrument. The family history was good. The patient had lost flesh rapidly, for in health his average weight had been 12 st.; three days after admission he weighed 8 st. 4 lb. No tumour or enlarged glands could be discovered in the thorax. The patient was much troubled with a cough, and he had frequent pains at the pit of the stomach.

October 17. A No. 9 bougie was passed into the œsophagus for about twelve inches, when it met an obstruction. No force was used, and the instrument was withdrawn without having entered the stomach. He was ordered to have twice a day an enema consisting of two ounces of brandy, three eggs, and half a pint of essence of beef.

18*th*. The physical examination of the chest disclosed nothing abnormal. A bougie was passed, and, according to the patient, went through the stricture. Pulse 50; temperature and respiration normal. Two days later a bougie was used, which did not pass the stricture, but on the 24th a No. 8 bougie was passed, and again on the 26th; both times it was supposed to have gone through the stricture, for the patient was able to swallow better for the next twenty-four hours. An abortive attempt was made on Oct. 29th: this was the last time any instrument was used. On Oct. 26th he was weighed, and had lost 2 lbs. in a week. His cough became very troublesome. He expectorated large quantities of muco-purulent sputa containing more or less blood. There was considerable pain at the pit of the stomach, which was also felt in the right scapular region. His pupils were unequal, the right being the larger.

31*st*. He swallowed part of a sole, the last food he took by the mouth. He threw up three tablespoonfuls of blood. He was ordered four enemata a day, instead of two, as before. These were given fairly hot. He was able to retain them, and seldom had more than one action of the bowels in twenty-four hours. A consultation was held, at which the majority of the surgical staff were present. The opinion was unanimous that the nature of the stricture was malignant. It was also thought to be a favourable case for the operation of gastrostomy. The patient was again weighed on Nov. 3d, and was found to found to have lost 8 lbs. 12 ozs. in a week. He gave his hearty concurrence to the proposed operation. On Nov. 4th he vomited two teaspoonfuls of blood. The abdominal pain was less. Urine scanty, sp. gr. 1038, free from albumen and sugar; cough urgent.

On November 6th he was quite cheerful, and had had a good night. There was no pain except on coughing. Bowels open. Tongue dry and furred. Pulse 64; temperature and respiration normal. He had been without food by the mouth for seven days. Two enemata were administered during the morning. One-sixth of a grain of acetate of morphia was given hypodermically at 1.15 P. M. At 2 P. M. the patient was placed under the influence of nitrous-oxide gas and ether. Mr. Callender then made the usual incisions, and the peritoneal sac was opened. The great omentum and the edge of the left lobe of the liver presented themselves. The stomach was easily found, and having been drawn down, was stitched with some silver sutures, to the anterior wall of the abdomen. The stomach was then opened (no blood having been allowed to pass into the peritoneal cavity, all bleeding having been carefully stopped as the operation was being proceeded with), and the cut edges of the stomach were then secured to the margins of the abdominal section by eight silver sutures. No evidence of disease could be recognized when the finger was introduced into the stomach. An India-rubber tube three inches long and one-third of an inch in diameter was placed in the viscus and fastened there. The wound was dressed with carbolized oiled lint. The patient was eighty minutes under the anæsthetic, owing to the time given to the prevention of bleeding. Pulse 76, small and regular. At 5.30 P. M. an enema, and at 9 P. M. a hypodermic injection of one-sixth of a grain of morphia were given. At 10.15 P. M. the dressings were changed and the tube removed, as it seemed to be causing irritation. The discharge was copious, consisting of a dark bilious-looking material mixed with a thin reddish fluid; the reaction was acid. Pulse 80, strong and regular; temperature 99.6°. He had not passed water.

November 7. He had about four hours' sleep during the night. The wound was dressed at 2.30 and 9.30 P. M. A hypodermic injection of a sixth of a grain of morphia was given each time. Cough troublesome, and he expectorated a large quantity of muco-purulent fluid, free from blood. He passed water at 7 A. M., and complained of much scalding in doing so. Urine was very scanty, specific gravity 1035, highly acid. With the exception of feeling faint at times, the man expressed himself as being very comfortable. There was no abdominal tenderness. The tongue was rather dry, and coated with a brownish fur. At 3 P. M. the dressings were again changed, and the edges of the wound smeared with oil (this was done each time the wound was dressed). About three ounces of warm milk were passed through a small tube into the stomach, most of which, however, ran out. Pulse 112; temperature 99.6°; respiration 28. At 4.30 P. M. an enema of one-sixth of a grain of morphia was given; 10 P. M. the bowels had been open, and he had been dozing since 6 o'clock; the dressings were changed and an enema given. The wound looked red at the lower margin, where it was probably irritated by the discharge. Pulse 100, less strong; temperature 99.4°; respiration 28.

8th, 2 A. M. His bowels had been open twice. He felt unable to retain an enema. One-sixth of a grain of morphia was given hypodermically; at 9.30 A. M. the wound was dressed and an enema given. The patient had slept four hours during the night; there was no abdominal tenderness; he felt better, but looked more sallow. Tongue dry, but less furred than it had been. Pulse 96, small and regular; temperature 99°; respiration 24. At 2.30 P. M. seven drachms of warm milk and the yelk of an egg mixed with it were passed into the stomach through the tube as before, and were apparently retained; at 5 P. M. this was repeated, together with an enema; both were again given at midnight. Each time the food remained in the stomach. The wound was dressed at 2.30 P. M., and at midnight. The lower part was now much excoriated by discharge, despite the precautions taken. The man complained much of thirst and giddiness. There was no abnominal tenderness. The morphia was repeated.

9th. The patient felt much weaker, and had a good deal of pain all over the abdomen. He was fed through the wound at 9 A. M., and had an enema at noon. He complained of thirst, and the cough was troublesome, but the latter was relieved by chewing tobacco. He slightly wandered in his talk during the morning. His face was much more sallow and the cheeks sunken. Tongue dry and thickly furred. Lips pale. At 2 P. M. the stomach was washed out with warm carbolic acid, 1 part in 70, to get rid of the copious discharge from its mucous surface; after this he was fed as before, but almost all the nourishment was returned. Morphia was again given, and repeated at 3.30. Pulse 100, small and regular; temperature 98.6°; respiration 32, abdominal. At 5.30 P. M. he was fed, a teaspoonful of brandy being added to the milk and egg, most of which was retained. He had been sleeping since the last dose of morphia. He seemed stronger, but wandered in his talk. At 10 P. M. he had been sleeping. He was again fed. Pulse 102; temperature 97°. The muscles of mastication acted on this and other occasions when food was introduced into the stomach.

10th. Morphia was given as before, and he was fed at 2 A. M. Pulse 100, irregular. At 5.30 A. M. he was much weaker, and had been sleeping. His extremeties were cold. Said he was not in pain. Pulse 108, very small and irregular; respiration 38. The wound was dressed, and he was fed as before. At 8.45 he was fed, two teaspoonfuls of brandy being added, when he revived somewhat, but was greatly exhausted. No pulse could be felt at the wrist. He seemed in no pain. At 10.30 A. M. he died suddenly, having lived ninety-one hours after the operation.

The post-mortem examination was made twenty-seven hours after death. The body was much emaciated. The œsophagus having been taken out, there was found an ulcerated stricture, involving the whole calibre of the tube, in the lower third, a little over two inches in length, and ending about one inch above the cardiac opening of the stomach. The following is the surgical registrar's description of the parts: "The base of the ulcer was ragged and sloughing, with little induration. The disease had extended through the anterior part of the wall, and had involved the pericardium, which, all along the base of the heart, was adherent. The upper border of the ulcer was formed of hard and slightly nodulated mucous membrane, raised and slightly everted. The lower margin was less characteristic." The pericardium was implicated to such an extent that on its removal a large hole was made in the œsophagus. There was general peritonitis, most marked in the upper part of the abdomen, but no increase of fluid. The great omentum was quite devoid of fat. The liver was cirrhosed and fatty (the man had been a hard drinker). Lungs, kidneys, stomach, and intestines healthy. A soft, spherical, caseous mass, of the size of a largish marble, was found in the right suprarenal body.

It is a curious fact that this patient had, all his life, the power of regurgitating his food at will, an accomplishment of which he made frequent use.—*Lancet*, April 14, 1877.

Gastrotomy in Obstruction of the Œsophagus.

M. LANNELONGUE, of Bordeaux, read a paper (*Gaz. Hebdr.*, April 13th) on a case of gastrotomy, performed upon a man fifty-nine years of age, on account of an impassable obstacle situated at about the middle of the thoracic portion of the œsophagus. The difficulty of swallowing had gradually been increasing during six months, so that at last he could only swallow a few spoonfuls of milk. The emaciation was extreme, but there were no cachectic appearances. Gastrotomy was performed, and a fistulous aperture was easily established, which enabled the patient to be regularly fed. He died, however, on the twenty-sixth day, in consequence of an epithelioma of the œsophagus having induced bronchial perforation and asphyxia. The stomach was found to be solidly adherent to the walls of the abdomen, and the artificial fistula was well formed, so that the success of the operation was complete. M. Lannelongue concludes that—1. Gastrotomy is a rational operation, founded on the history of gastric wounds and fistulæ produced experimentally in animals, or accidentally in man. 2. It is indicated wherever aphagia renders death from inanition imminent. 3. The operative procedure should be conformable to the rules indicated by Prof. Verneuil, one of the principal of which is not to open the stomach until after having fixed it to the abdominal wall by the careful application of numerous points of suture, in order to prevent any effusion into the peritoneal cavity. 4. The incision should not be carried below the inferior edge of the eighth costal cartilage, so as to more directly reach the anterior wall of the stomach, which, after long fasting, is always shrunken and drawn up towards the diaphragm. 5. The stomach should be opened near its small curvature, so as to allow space enough in a dependent position for the accumulation of the secreted or injected fluids. 6. Neither should hæmostatic forceps be applied to the gastric orifice, nor should the tube left in be fixed by threads, these means risking lacerations and mortifications, which may give rise to an enlargement of the fistula and the escape of the fluids.—*Med. Times and Gaz.*, May 5, 1877.

Extirpation of the Spleen.

In a paper published in the *Wiener Med. Woch.* (1877, No. 5), Prof. Billroth observes that the recent success of Péan will probably render the performance of splenotomy—which in itself is a simple operation—more frequent; and he is desirous of relating a case which has come under his own care, as the accident which gave rise to its fatal termination may probably be in future provided against.

Mrs. C. A., aged 45, of strong build, was admitted to the Clinic, January 20. She had borne several children, had always had good health, and had never been exposed to the influence of malaria. During two years she had observed a tumour of the right side, which slowly increased in size; but until last summer she was able to continue a laborious employment. Since then she became weaker and weaker, and emaciated, but on her admission did not seem very ill. On examination, however, she was found to have an enormously hypertrophied spleen, together with some enlargement of the liver, and a little ascites. There was great leukæmia, the red globules being five to one of the white. The appetite was good, and the pulse 60. The operation was performed on the 27th. The incision through the integuments was continued a hand-breadth above and below the umbilicus, several small vessels being secured by catgut. On the peritoneum being opened a moderate quantity of fluid issued, and the lower internal edge of the enormous spleen, and a portion of the lower edge of the liver, presented themselves. The omentum and intestines lay behind the spleen, and were kept back by means of large flat sponges. The spleen, which nowhere adhered, was slowly forced down out of the wound, and the *ligamentum gastro-lienale*, together with the greatly enlarged splenic vessels, were secured by double ligatures in six places. On dividing the ligatured parts no blood flowed, and Prof. Billroth observes that his manipulations in this case were greatly aided by the experience he had gained by his experiments on animals. After it had been ascertained that there was no hemorrhage, all remains of the dropsical fluid were sponged away, and two long drainage-tubes were introduced. From the commencement of the anaesthesia to the completion of the dressing of the wound the operation had lasted three-quarters of an hour, the impression of all present being that splenotomy is a simpler operation than most ovariotomies.

Calling to see his patient two hours after the operation, Prof. Billroth found his assistants engaged in endeavouring to arrest a hemorrhage which had come on consequently upon the efforts made by the patient to pass some hardened fæces, which had remained undischarged after an enema given just before the operation. All efforts were in vain, and she sank four hours and a half after the operation. At the autopsy a large quantity of softly coagulated blood was found in the abdomen; and of the six ligatures one was missing and could not be found, the cellular tissue around the tail of the pancreas, close to which it had been applied, being lacerated. Water injected into the splenic artery and vein freely appeared at the surface of the wound.

The ligature doubtless gave way during the pressure made by attempting to pass the hardened fæces. Prof. Billroth had made use of strong hempen threads as ligatures, believing that where masses have to be tied they are far preferable to silk or catgut. He supposes either that his strength of fingers was not sufficient to embrace firmly enough the tissues closely surrounded by the pancreas, or that he had not carried compression far enough from fear of dividing the vessels, having in memory the thinness of the walls of the splenic vein as one of the causes of accidents in former operations. He would willingly have avoided tying in a portion of the pancreas, as in former fatal cases this had occurred, while it is the nature of the salivary glands to greatly swell if a portion be tied. In fact, however, this inclosure of a portion of the pancreas seemed unavoidable in order to obtain a sufficiently prolonged mass to make the requisite pressure on the dilated splenic vessels.—*Med. Times and Gaz.*, April 7, 1877.

At the last meeting of the Midland Medical Society, Mr. H. Browne, surgeon to the West Bromwich Hospital, exhibited an enormously enlarged spleen which he had removed by operation. The patient was a young man, æt. twenty years, and the hypertrophied organ formed a tumour, which extended from the thorax to the pubes. The performance of splenotomy was sanctioned by Mr. Furneaux Jordan, consulting surgeon to the hospital. The patient died half an hour after the operation. He recovered from the effects of the anæsthetic used, spoke, and did not appear to be unduly collapsed; but upon making an effort to sit up in bed, fell back and died.—*Medical Examiner*, May 10, 1877.

On Direct Wounds of the Ureter.

Mr. Timothy Holmes, at a late meeting of the Royal Medical and Chirurgical Society (*Lancet*, April 14, 1877), described a case in which it was thought probable that the ureter was punctured from behind by a stab-wound, implicating no other structure of importance. The injury occurred to a boy, who was accidentally stabbed by a playmate. The wound was a very small one, and bled but little. Immediately on the cessation of the hemorrhage, a copious flow of clear fluid was seen to proceed from the puncture, and this continued for a fortnight, in quantity sufficient to soak three large draw-sheets in the course of the day. The composition of the fluid was extremely different from that of normal urine; but it differed also from that of the cerebro-spinal fluid, which seemed to be the only other secretion that could have been evacuated by a puncture of this kind; nor did the symptoms point to any lesion of the spinal membrane or nerves: while the urinary secretion was much altered in quantity and quality from the date of the injury. Various arguments were adduced to prove that the lesion in this case was really a direct wound of the ureter—an injury not hitherto treated of in our surgical works, though direct wounds of the kidneys have been carefully described. The possibility of the occurrence was illustrated by a preparation made on the dead subject, which accompanied the paper.

Mr. Thomas Smith thought the opinion that the ureter was wounded was based on insufficient grounds. Mr. Holmes further only considered the alternative of the fluid that escaped from the wound being either urine or cerebro-spinal fluid, but it might have come from the peritoneal cavity. The analysis of the fluid seemed to show that it certainly was not urine, and, apart from this, even if the ureter were wounded, it would be very improbable that the urine should find its way out through the wound, rather than into the loose cellular tissue around. The fluid not being urine, the ureter could not have been wounded. The large quantity of fluid poured out was not incompatible with its derivation from the peritoneal sac.

Mr. Howse had a case now under his care which seemed to lend support to Mr. Holmes's view. It was that of a lad about fifteen years of age, who sustained a fracture of the ilium from being run over, a wheel passing across the abdomen. There was much bruising and collapse at first, and after some time a swelling appeared in the left flank, unattended by any constitutional disturbance; on tapping, three or four pints of clear fluid escaped, having all the characters of urine, and the puncture was allowed to close up. The fluid reaccumulated, and was again evacuated, and ever since (a period of eight or nine weeks) the tapping has been repeated about once a week, the amount of fluid withdrawn diminishing. The fluid is undoubtedly urine, but it contains less urea and is of lower specific gravity than that which comes from the patient's bladder. In Mr. Holmes's case the lowness of the specific gravity pointed against the fluid being derived from the peritoneum. Mr. Howse added that in a case of spina bifida, which he tapped with a view to apply pressure, the cerebro-spinal fluid drained away owing to displacement of the pad, and this escape of fluid was accompanied by a train of well-marked nervous symptoms.

Mr. T. SMITH pointed out that in Mr. Howse's case the fluid contained urea always, whereas in Mr. Holmes's urea was frequently absent.

Mr. DENOUT, who spoke in French, related the case of a patient in whom a renal calculus had led to the establishment of a fistula in the loin, which remained long patent.

Mr. BARWELL remarked upon the great differences present in the chemical analysis of the fluid escaping from the wound and the urine. He considered that the peritoneum would be more easily wounded than the ureter, which lies in loose tissue, and, like a bloodvessel, might easily escape from the knife. He had at present under his care a patient in whom a stab in the arm passed just between the biceps tendon and the brachial artery. To travel through the back to reach the ureter the blade of the knife must be of considerable length. The quality of the fluid, however, presented the greatest difficulty, and he thought that of the three hypotheses as to its source that attributing it to a wound of the ureter was the least probable. He had had two cases of spina bifida under his care, in which draining away of the cerebro-spinal fluid in large quantities had been followed by no nervous symptoms.

Mr. RIVINGTON said that he also was struck with the omission in the paper of any mention of the peritoneum as a possible source for the fluid. He might add to the reasons already put forward against the urethral hypothesis that some of the urine would certainly have been effused into the cellular tissue. He had noticed a large quantity of fluid escape from the peritoneal cavity from a small wound left after colotomy. The amount of albumen in peritoneal fluid varies exceedingly, so that its absence in Mr. Holmes's case did not tell against the view that it was the peritoneum that was wounded, and not the ureter.

Mr. HOWSE asked if there was any case known in which fluid from the peritoneal sac was of such low specific gravity as the fluid escaping in Mr. Holmes's case.

Mr. RIVINGTON said the fluid from the healthy peritoneum was never examined.

Mr. HOWSE doubted if the peritoneum could be considered healthy where so much fluid was passed out.

Mr. G. POLLOCK asked if the specific gravity of the fluid obtained from the wound was compared with that which escaped from the bladder. The increased flow of urine from the bladder following on closure of the wound might be due to an arrest of drainage, from whatever source. If the urine from the bladder were of higher specific gravity than that from the wound, the latter could hardly have implicated the ureter; for why should the secretion of one kidney be of higher specific gravity than that from the other? He was, therefore, inclined to believe with Mr. Smith that the peritoneum was wounded, and not the ureter.

Dr. J. HARLEY (the Hon. Sec.) read an extract from the paper, to the effect that whereas the fluid escaping from the wound was of a sp. gr. 1008, with but little variation, the urine from the bladder ranged from 1015 to 1033. He himself suggested that, granting Mr. Holmes's hypothesis, the urine escaping from the divided ureter might, in its passage, be diluted with serous fluid from the irritated tissues. The first quantity collected decidedly contained urea, but subsequently only faint traces of this constituent could be found.

Mr. HOLMES, in reply, said that he did not wish to dogmatize on the subject, and he had only put forward what seemed to him the most probable explanation of the case. The idea that the fluid might have come from the peritoneal cavity certainly suggested itself to his mind whilst the case was under observation, but he could see no reason for accepting that view. The fluid in this case contained no albumen, and this of itself negatived its peritoneal source. The continuous outflow of the fluid, which was in as great quantity immediately after the accident as it was a week later, showed that it could only come from a source where an unintermitting secretion was going on. With regard to Mr. Barwell's statement, he did not think it likely the ureter could have escaped as suggested, and certainly that tube was nearer to the surface (from the back) than the peritoneum was. The knife was a long-bladed one, and he had found from experiment that a wound inflicted as stated would reach the ureter. Mr. Howse's case showed that the urine proceeding directly from the ureter and kidney may contain less urea than that passed per urethram. In his own case, the contrast between the fluid passed from the wound and the urine was very remarkable. He thanked M. Debout for his interesting case of discharge from the ureter connected with passage of a stone internally; but the fluid had not been examined in that case. Direct wounds of the ureter are not mentioned by Simon; but Mr. Holmes desired to place his case on record as a contribution to the subject, believing that if the fluid did not come from the urinary tract, it must have come from the spinal membranes.

Cancer of the Rectum treated by Excision.

At the Strasburg Medical Society, M. Koeberlé recently gave the particulars of a case of epithelioma of the lower two inches of the rectum, in which he had excised the diseased portion of the gut. The ulceration involved two-thirds of the circumference of the bowel, which was still mobile, and the recto-vaginal septum was unaffected. The case being deemed a very suitable one for excision, M. Koeberlé. after dilatation of the sphincter, and dividing the tissues in the posterior median line, made a circular incision at the margin of the anus, comprising the whole thickness of the coats of the intestine, which was then carefully dissected out of the surrounding cellular tissue, until the limits of the disease had been passed. Care was taken not to injure the peritoneum or vagina. The operation was completed by the removal of the lower segment of the intestine. and the stitching of the healthy part to the anus. No ligatures were found to be necessary, the bleeding from the numerous hemorrhoidal vessels being sufficiently controlled by forceps. Six weeks after the operation the anus had again become naturally contracted; the motions were regular, and the rectal pain had completely disappeared. There was no recurrence of the disease.—*Lancet*, April 14, 1877.

Scirrhus of the Prostate.

Primary scirrhus of the prostate is so rare that the only other case with which we are acquainted was recorded by Mr. Adams in *The Lancet*, 1853, vol. i. p. 394. Some have even denied its existence. but the evidence of the occurrence of this condition cannot fairly be impugned. When cancer commences in the prostate, it is almost invariably encephaloid in character. Last year M. Butlin showed at the Pathological Society (see *The Lancet*, 1876, vol. ii. p. 574) a specimen of primary scirrhus of the bladder, but in this case the prostate was almost entirely unaffected.

G. B., forty-seven years of age, a sailor, was admitted in Dr. Dickinson's ward at the Northern Hospital, Liverpool, on Oct. 20th, 1876, suffering from chronic rheumatism. The pains in the joints soon passed off. but as he remained very weak, a more careful examination was made, and he then stated for the first time that he had pain and difficulty in passing water. He had had gonorrhœa a year before, followed by stricture, for which he had been treated by instruments. The perineum was hard and cartilaginous, and there were two fistulous openings there. The glands in both groins were considerably enlarged, especially on the left side, and all were of a stony hardness. On examination per rectum, a hardened mass was felt, corresponding in size and shape to an enlarged prostate, and so hard as at once to suggest scirrhus, especially when associated with such glands. No catheter could be introduced beyond the stricture, but as morphia suppositories were found to give him ease in making water and freedom from pain, no further attempt to cure the stricture was made. The other signs were those of persistent cystitis, and occasionally he passed blood. He got gradually weaker, and the cancerous cachexia became more marked. He died on the 12th January, 1877.

The post-mortem appearances were the following: The tissues at the base and sides of the bladder were all matted together and thickened. The prostate was about the size of a horse-chestnut, and when cut into had all the appearance of scirrhus. There were three glands lying along the right iliac vessels much enlarged and hardened. The bladder showed well-marked signs of cystitis, both ureters were greatly dilated and thickened, and the kidneys were undergoing atrophy from the backward pressure of the urine; but all these changes seem to have been due to the stricture rather than to the disease of the prostate, since the prostatic portion of the urethra was of normal size, and the tumour did not seem to obstruct the outflow of urine. There was no appearance of cancer elsewhere, nor any other noteworthy change in any of the organs. Microscopic examination showed great dilatation of the tubes of the gland, with large collections of cells in them, as in ordinary glandular carcinoma, but there was exceedingly little infiltration of the muscular stroma, which seems to be characteristic, for Rindfleisch, quoting another authority, says it is confined to the glandular elements, and that the stroma remains passive. The enlarged glands were also cancerous when examined. The kidneys both showed well-marked interstitial nephritis.—*Lancet*, April 28, 1877.

Treatment of Atony of the Bladder.

Dr. VON LANGENBECK at a late meeting of the Medical Society of Berlin, referring to the atony of the bladder with enlarged prostate, common in old persons, said that he had derived excellent results in three cases from the hypodermic injection of ergotin. In all the cases the contractile power of the urine was increased, so that the patients voided more urine; and, after some days, the improvement was so great that only a small quantity of urine was left in the bladder. The last patient was a man aged 62, who passed little more than an ounce of urine three or four times daily; but more than half a litre was drawn off by the catheter. An injection of 12 centigrammes (2 grains) of extract of ergot was made. On the same day the patient could already urinate better, and the hypertrophy of the prostate distinctly diminished. After four injections the atony of the bladder was overcome. Herr Langenbeck could not ascribe this result to the other remedies employed—application of ointment of iodide of potassium to the rectum and perineum. Dr. Israel had met with a case in the Jewish hospital, in which marked relief was afforded by injections of ergotin in a case of vesical catarrh and hypertrophy of the prostate. The patient was able to retain his urine three hours, whereas previously he had felt the desire to micturate every ten minutes. No other treatment was employed. The action of the remedy was to be explained either by its influence on the muscular coat of the bladder, or by contraction of the vascular plexus surrounding the prostate.—*London Med. Record*, March 15, 1877.

Obturator Hernia of the Bladder.

In the *Annali Universali di Medicina e Chirurgia* for February, 1877, Dr. NATALE ZOJA begins with an historical summary of published cases of hernia occurring through the upper part of the thyroid foramen. Of the various names, thyroideal hernia, *hernie ovalaire*, obturator hernia, and subpubic hernia, he prefers the last, adopted by Bérard.

The viscus protruded has been generally some part of the small intestine; but, though Monteggia and Levi assert that Gunz and Albinus knew of actual cystocele, Dr. Zoja has not been able to satisfy himself that any other case than his own has been already clearly established; he, therefore, considers it unique. His case occurred in 1864 in an unmarried woman, aged 79, who died of bronchial catarrh after a three days' illness, in which the symptoms were insufficient for a diagnosis of the hernia.

A *post-mortem* examination was made, and the dissection is to be found in the University Museum at Pavia. Before opening the body, a hypogastric swelling was found, globular, elastic, and fluctuating. This had been felt during life, and had been supposed to be a distended bladder. A catheter passed easily into the bladder, but gave issue to only a few drops of urine. *Per vaginam* the hypogastric swelling could still be felt, and the uterus was hard, depressed, and folded back.

At this inner part of the left thigh a slight swelling could be seen under the muscles below Poupart's ligament; it felt like an enlarged gland, but was pliant and disappeared on pressure, reappearing when let alone, and becoming tense when the hypogastric tumour was pressed.

On opening the abdomen, he found an ovoid cystic tumour of the left ovary, seven inches high and five to five and a half wide and deep, containing a litre of reddish serum. The rectum lay to the right. The bladder was stretched and flattened over its front, *and projected, moreover, through the upper part of the left thyroid foramen*, with the obturator vessels and nerve, forming a cystocele of the size of half a walnut.

In the accompanying illustration, he figures a lump of omentum behind the cystocele. but makes no reference to it in the text. Along the outer side of the neck of the hernia ran the obturator artery, derived in this instance from the epigastric; the protruded portion of bladder was not adherent to surrounding parts, contained a little urine, and was covered with peritoneum on its inner and lower posterior segment, which protruded like a hernial sac, while the front of the hernia was devoid of peritoneum.—*Lond. Med. Record*, May 15, 1877.

On Necrosis without Suppuration: with a Case of Intra-Osseous Necrosis of the Femur, without Suppuration, for which Amputation at the Hip-joint was performed.

MR. W. MORRANT BAKER, at a late meeting of the Royal Medical and Chirurgical Society (*British Medical Journal*, March 3, 1877), gave the particulars of a case which was admitted into St. Bartholomew's Hospital under his care in August, 1872, with the following history. The patient, a man aged 20, was quite well until about ten weeks before his admission, when he began to suffer from pain and swelling in the left thigh. Both pain and swelling gradually increased, until at length, being unable to continue his work, he was admitted into the Holborn Union Infirmary, under the care of Mr. Norton, at whose request he was subsequently transferred by Mr. Baker to St. Bartholomew's Hospital. Before he left the Infirmary, as he was walking in the ward, the left leg gave way suddenly under him, and he fell; and it was found subsequently that the femur had been fractured in its middle third. At the time of the patient's admission into the hospital, there were the following symptoms. The left lower limb, apparently shorter than its fellow by an inch or two, lay helplessly on its outer side, with the leg slightly flexed. In the thigh was a large tumour, hard and incompressible, which occupied the whole of the middle third of the femur, and extended below to within a short distance from the knee-joint, and above to the trochanter. In its middle third, where the swelling was greatest, the femur was considerably deformed by an ununited fracture. The integuments and other soft parts were quite natural. There was neither redness nor œdema; nor could fluctuation, as of confined fluid, be at any part detected; nor were there any constitutional symptoms indicative of inflammation or impending suppuration. The patient was said to have lost much flesh; and he was evidently in process of being gradually worn out by acute pain and sleeplessness. His temperature was below 100 deg. Fahr. The femoral glands were not enlarged. There was no doubt in the minds of all who saw the patient that the case was one of malignant tumour of the femur, and all were unanimous in the belief that nothing short of amputation would give him any chance of relief. The limb was accordingly amputated at the hip-joint. The patient rapidly recovered flesh and strength after the operation, and, in the course of a few weeks, left the hospital well. On dissecting the limb, it was found that the disease was not malignant tumour, but necrosis. Nearly the whole of the femur had perished; and at the seat of fracture there was but little union. But there was no sign of suppuration; and not a drop of pus could be anywhere detected, even after section of the whole length of the bone. In some parts, the dead bone was beginning to separate; while in others it was still immovable. A large quantity of new bone had been produced by both the periosteum and the medullary membrane; and the dead bone was "locked" in a manner which must have rendered futile all attempts to remove the disease by any other method than amputation. The author proceeded to the consideration of the questions which arose with respect to conditions so remarkable; extensive necrosis, without the formation of pus, being so rare as to be almost unknown to surgical pathology. The following were the conclusions to which the various facts and arguments brought forward by the author seem to lead: 1. Nearly the whole of the shaft of a long bone may perish, and nevertheless, suppuration, after several weeks and months, and possibly even years, may be still absent. 2. Necrosis of a long bone may, in the absence of suppuration, closely simulate malignant disease, even to the extent of undergoing so-called spontaneous fracture; and the latter event may not, for at least many weeks, be followed by suppuration. 3. This apparently strange deviation from the course of the symptoms usually accompanying necrosis is probably due to the fact that the death of the bone is the last of a series of changes of which the earlier consist of chronic inflammation, with hypertrophy and sclerosis. 4. The symptoms of necrosis occurring in the course of chronic osteitis, more especially in adults, may be expected to pursue a course which is different, in many respects, from that which is characteristic of the more common examples of necrosis. 5. Suppuration is not an early event, usually, in cases of necrosis from chronic osteitis. 6. In such cases of necrosis, the endosteum as well as the periosteum contributes a large quantity of new bone. 7. It may be well, for distinction's sake, to term this variety of necrosis, in which the sequestrum is inclosed between periosteal and endosteal new bone, intra-osseous necrosis, whether with or without suppuration. 8. There exist cases of intra-osseous necrosis in which complete removal of the dead bone by a surgical operation is, from the nature of its connections, a practical impossibility; and for which, therefore, if the symptoms be sufficiently distressing, amputation is the best remedy. 9. In favourable cases, and when the disease is not extensive, the surrounding parts, after suppuration, may heal, although some dead bone is permanently confined within its new sheath; the separation of the dead from the living being indefinitely postponed. 10. The peculiarity of the case which forms the text of the paper is to be found rather in the variety of spontaneous fracture and of opportunities of examining the bone by section in cases of necrosis from chronic inflammation at an early stage before suppuration has occurred, rather than in the nature of the case itself. The paper was illustrated by drawings and specimens of intra-osseous necrosis, with and without suppuration; and also, for comparison, by illustrations of chronic osteitis, which had led to hypertrophy and sclerosis, but not to necrosis.

Mr. **BARWELL** had seen examples of the form of disease described by Mr. Baker. The diagnosis was difficult, particularly in the early stage; and the resemblance to malignant disease was very striking, especially when there was much pain and emaciation and the lymphatic glands were enlarged. Mr. **THOMAS SMITH** said that some months ago there came under his care in the Children's Hospital a child supposed to be the subject of malignant disease of the femur, increasing rather rapidly. The swelling, however, diminished after rest in bed, but again increased when the child got up and moved about, until it became unable to walk. This alteration took place for two or three months. He showed the patient to Mr. Baker, who believed that the case was very probably one of chronic inflammation with necrosis. The child was sent home, and its father, an intelligent man, was making observations on the effects of rest and motion on the swelling of the limb. Mr. Smith was not inclined to operate in the case unless interference were urgently required. He believed that it would not be possible to remove more than a part of the necrosed bone; and, after all, amputation would probably be necessary. Mr. **JOHN CROFT** asked Mr. Baker how he would explain the presence of pain and the formation of a cloaca in his case. He thought that there must have been some effusion. Mr. **BAKER** said that no doubt there was some effusion; but not a drop of pus could be found. There was no cloaca in the ordinary sense of the word. There were, indeed, one or two holes, but these were produced in making a section of the bone.

Amputation of the Hip-Joint.

Mr. **NEWMAN** (*Glasgow Medical Journal*, Oct. 1876) describes a new method of amputating, at the hip-joint, which is specially intended, by bringing pressure to bear on the base of the flaps, to diminish the amount of hemorrhage, and render the abdominal tourniquet and other appliances unnecessary.

The knife used consists of a blade twelve and a half inches in length and one inch broad, with two movable steel slips nine inches long, two-fifths of an inch broad, and one-tenth of an inch thick, fitted into the back of the blade. These slips are kept in their place by two steel snibs fixed in the handle, and the slips fit so accurately, that they in no way interfere with the knife when cutting. To the handle end of each slip an elastic band is attached, and each band has a hook at its free end, which can at any moment be fastened to a pin stretching across an oblong space at the end of each slip.

The operation is conducted as follows: As much blood as possible having been pressed out of the limb, and the patient anæsthetized and fixed in the usual position, an assistant adducts and slightly extends the thigh of the limb to be removed—say the right—and the surgeon, standing on the left side, inserts the knife a little in front of the tuberosity of the ischium, passing it outwards posterior to the neck of the femur, bringing it out an inch behind the line between the anterior superior spine and the trochanter major. In order to allow the knife to pass in this direction, the limb is rotated inwards as soon as the point of the knife comes into contact with the neck of the femur. The posterior slip is now disengaged, and the knife is withdrawn far enough to allow the point to be passed in front of the neck of the femur; and, by abducting and rotating the limb outwards, the point of the knife is made to pass through the wound already made between the spinous process and the great trochanter.

The elastic bands are now stretched and hooked, and the other slip is disengaged from the side of the knife. The knife is now carried downwards to form the anterior flap, the thigh is extended, abducted, and rotated outwards, and the joint is opened by cutting on the head of the bone in front, which, on depressing the femur, starts forwards and enables the surgeon to cut through the round ligament and the rest of the capsule, and carry his knife round the head of the bone to form the posterior flap.

The flaps thus formed are so firmly compressed at their base, between the slips and elastic bands, that there is no danger of hemorrhage.

The surgeon now secures the femoral artery, and the vessels of the anterior and posterior flaps; and then, on removing the elastic bands from the anterior and afterwards the posterior flap, the operation is completed.

Removal of the left limb would be conducted in much the same way, but the surgeon would enter his knife between the anterior superior spinous process and the great trochanter, and bring it out in front of the tuber ischii.—*London Med. Record*, March 15, 1877.

Dislocation of the Humerus, with Rupture of the Axillary Artery.

M. LE DENTU (*Gaz. Hebd.*, March 30) related to the Société de Chirurgie the case of a man admitted to the Hôtel-Dieu, who three days before, in falling from a loaded hay cart, dislocated the left shoulder, and ruptured the axillary artery. The whole arm became greatly distended, the effusion extending to the dorsal region, and it was not deemed prudent to reduce the dislocation. Yet expectation was inadmissible, as the patient, with a temperature of 37° C., was getting feeble, and the swelling increasing in size. As almost all similar cases in which ligature of the subclavian had been performed terminated fatally, M. Le Dentu resorted to amputation of the shoulder-joint on the seventh day after the accident. The axillary artery having been found to have undergone great alteration, the subclavian, around which a provisional ligature had been placed, was tied, and the disarticulation completed. The patient died next day. Pus was found in the collection of blood. Opposite the origin of the subscapular artery there was a patch of atheroma, and at this point the axillary artery was completely torn through. The aortic valves were atheromatous, and the kidneys and liver were fatty, the patient being a drinker. M. Panas observed that in all the published cases it has been opposite the origin of the subscapular that rupture had taken place—a fact leading to the belief that the rupture has existed prior to attempts at reduction, when these had been made.—*Med. Times and Gaz.*, April 7, 1877.

Resection of Joints.

At the recent Congress of German Surgeons, Prof. HUETER, of Griefswald, delivered an address on the subject of the resection of joints. Premising that his subject was a dangerous, though very attractive one, he promised to keep it for its own sake within close limits. He was far from establishing his own opinion as a rule or standard, but expressed the hope that the discussion might prove instructive both to himself and to the audience. Keeping out of the question a large part of resective surgery, viz., resection of the maxillary joint and the large joints of the extremities, he confined himself to resection of the foot and elbow-joint. The opinions on total and partial resection of these joints differed considerably; the speaker had been thinking very closely about the matter, he had also done a great deal of work at it, and would like very much to learn the opinion of other surgeons about it. Alluding to the statistics of total and partial resection of foot-joints, he said that Dr. Grossheim's publications in the *Deutsche Militärärztliche Zeitschrift* were certainly somewhat insignificant, and not quite to be depended on. Fifty total resections showed 20 fatal cases, which was equal to 40 per cent.; 47 partial resections showed 14 deaths, equal to 29.8 per cent. Another set of statistics, worked out by M. Laufs (Halle), referred to resections during times of peace; in these cases it was chiefly carious processes that had to be considered as indications. Sixty-two total resections showed 43 favourable, 7 not favourable, and 12 fatal cases; out of 37 partial resections, 21 cases proved favourable, 5 not favourable, and 11 fatal.

Some years ago Professor Hueter was strongly opposed to partial resection in war-time, but since that time he had become almost a convert, as he could not help seeing the progress made in the treatment of wounds, etc. The danger that used to attend the healing process had, in consequence of the antiseptic treatment of wounds, almost disappeared, and thus all that had been said against total resection lost much of its force. Antiseptics had removed the danger so frequently caused by the necessity for free drainage.

With regard to carious processes the case was different. When a joint of the foot was concerned, Hueter generally recommended partial resection, the same in time of war, and in cases of recent injury. He did not absolutely exclude it in carious processes, but then great precautions were necessary.

Coming to the elbow-joint, the speaker called attention to the statistics on the subject. Salzmann, in Helsingfors, had brought together 1217 cases, but gave no results; he remarked generally that the number of deaths was greater in partial than in total resections. Mayer (Munich) found that partial resection showed 18.4 per cent. movable joints, 23 per cent. deaths, and 12.3 per cent. anchyloses; while total resection showed 29.8 per cent. movable joints, 16.5 per cent. deaths, and 10.0 per cent. anchyloses. Otis, in America, also gave no results, but had had a very large experience. He concluded that total resection generally gave better results than partial. But all this was controverted by the statistics of Dr. Dominik, who had not only figures in abundance to draw upon, but also very valuable military reports. Among 111 partial resections the percentage of deaths was 20; and among 266 total resections, 25. Still more favourable were the functional results; they pleaded strongly for partial resection, as giving a greater chance of the preservation of useful anchylosed limbs. The partial resection of the elbow-joint had, therefore, almost gained the victory. But in cases of caries of the joint great reservation was necessary. Here total resection was rather to be advised in consequence of the frequent prevalence of osteomyelitic foci. A short time ago Hueter had occasion to perform three partial and two total resections. The three former were cases of injury, the latter of carious diseases. The result of the partial resection appeared at first to be brilliant, but was speedily lessened by the difficulty that arose in restoring the mobility of the limb. Both total resections were originally intended to be partial ones, but during the operation carious places were discovered in the olecranon, which had to be removed. If, as was mostly the case with all luxations, we were able to choose, we must decide as to which bone to save. If, for instance, the humerus was to be preserved, the incision must be made accordingly.

The results of his experience and labours had brought the speaker to the conviction that in every case of recent injury preference must be given to partial resection, and that caries always demanded great precaution. In cases of the latter, restoration of function was by no means certain, and we must wait for further experience before deciding on the relative value of the two operations.

Prof. GURLT said that he could confirm the statement of Professor Hueter, to the effect that the danger of partial resection is less than that of a total one. Summing up the reports of the first Schleswig-Holstein war, 1848–50, of the great civil war of the United States, of the second Schleswig-Holstein war, 1864, of the Austrian war of 1866, and of the Franco-German war in 1870–71, he obtained a total of 1222 cases. The fatal cases numbered 289, or 23 per cent.; out of 493 cases of total resection, 115 proved fatal, or 23.3 per cent.; the percentage of deaths from partial resection amounted to 23.5 per cent. The average results of these different modes of resection during these wars varied a great deal. But it might be said that the practice of total resection had generally been most resorted to. Professor VON LANGENBECK maintained that we could not be conservative enough in traumatic, nor sufficiently cautious in idiopathic cases, for carious foci which may cause serious consequences are very often discovered. In the further course of the discussion the operation at the hip-joint was alluded to. Professor von Langenbeck's method consists in cutting away the head of the femur below the *great trochanter*. He adopts this practice, because by the antiseptic treatment any danger arising from such an extensive resection can be obviated. Herr SCHEDE, physician to the great Städtische Krankenhaus in Berlin, has adopted the same method in ten resections out of twelve. Herr von Langenbeck, however, admits that the growth of the bone is interrupted by this proceeding, a fact the importance of which is not to be under-rated, as resection of the hip-joint is performed chiefly on children suffering from caries.

The discussion clearly showed that among German surgeons partial resection is steadily gaining ground, and that the antiseptic treatment alone has rendered these operations feasible.—*Med. Examiner*, April 19 and 26, 1877.

Osteoplastic Resection of the Superior Maxilla.

The *Berliner Klinische Wochenschrift* of January 29 contains a contribution from Dr. BUROW, of Königsberg, on the operative treatment of naso-pharyngeal fibroma. The author reports at some length a case of a man, aged nineteen years, from whom a large recurrent growth of this kind was at last wholly removed by Von Langenbeck's osteo-plastic operation. Division of bone was made, first from the surface of the malar bone to the spheno-maxillary fissure, and afterwards through the ascending process of the palate bone, and through the body of the lower jaw, above the hard palate. In each of these sections a chain-saw was used. The portion of the upper jaw thus partially detached was, together with the undisturbed soft parts on its anterior surface, elevated and turned inwards and upwards, so as to lay open from the front the pterygo-maxillary fossa, and to expose the tumour. In the first stage of this operation two incisions were made in the skin, one commencing below the inner canthus, and extending along the lower margin of the orbit to the malar extremity of the zygomatic arch, the other reaching across the cheek from the nasal orifice to the outer extremity of the first cut. The patient made a rapid and complete recovery, with but slight traces on his face of the incisions made in the operation. In this case, Von Langenbeck's operation was slightly modified with regard to the use of a chain-saw instead of a straight narrow saw. The author, in commenting on this case, argues that, of the several operative methods that have been practised in the radical treatment of naso-pharyngeal polypus, the method devised and practised by Von Langenbeck is the best. He does not deny, however, that in desperate cases, and especially when the tumour has been growing for a long time, it is necessary to sacrifice the whole of the maxilla in order to gain free access to the fixed parts of the growth; and there can be no doubt, it is granted, that total ablation of the upper jaw is a far less difficult operation than osteo-plastic resection. In the treatment of most cases of naso-pharyngeal polypus, since simple incision is not sufficient for a radical cure, the surgeon has to decide between total removal of the upper jaw and one of the different operations for so-called osteoplastic resection. In Huguier's operation, one of the latter class of proceedings, that portion of the upper jaw which Von Langenbeck leaves *in situ* is rendered movable, namely, the hard palate with the alveolar process and the floor of the antrum. Moreover, less of the seat of the disease is exposed in the former operation. It has been reported that reunion does not take place so readily in the French operation. In one of Huguier's cases brought under the notice of the Paris Academy, there was, nine months after the date of the operation, free mobility of the portion of bone that had been elevated. Roux, in his operation, loosened the upper half of the superior maxilla in such a manner that this portion of bone, together with the superjacent soft parts, would be elevated from within outwards. This method has no special advantages of its own, and does not expose so large a space as Von Langenbeck's operation, in which the upper part of the jaw bone is turned inwards. Dr. Burow holds that to Von Langenbeck, who performed his first osteoplastic resection in 1861, is due the credit of having, in the radical treatment of naso-pharyngeal polypus, substituted for total resection of the upper jaw a proceeding which entails no loss and no permanent damage to bone, and which enables the surgeon to reach the most deeply seated portions of the tumour.

In consequence of the abnormal expansion of the spheno-maxillary fossa and of the pterygo-palatine foramen through pressure of the tumour, the difficulty in the application of the chain-saw is not so great, Dr. Burow states, as might be concluded from trials on the dead body.

Osteoplastic resection may be attended with serious hemorrhage, as was proved in two cases reported, one by Esmarch, the other by Hill, in which notwithstanding every precaution having been taken, the patients died from this cause. Von Langenbeck describes the bleeding that may be expected in the course of this operation as very considerable. One surgeon was compelled to discontinue the operation on account of the profuse hemorrhage caused through laceration of the naso-pharyngeal tumour by the saw. Dr. Burow believes that, if certain precautions be taken, the hemorrhage attending the operation may be kept within moderate limits. He advises that in the early stages of the operation every bleeding vessel should be at once tied, and that during the open section of the bony parts, care should be taken to avoid touching with the saw the soft and vascular tumour. The author believes that the danger of hemorrhage from the tumour is less likely to occur in the use of the chain-saw, than in that of the straight saw recommended by Von Langenbeck.

Verneuil lost a patient during osteoplastic resection through a flow of blood into the trachea. Dr. Burow recognizes the danger of bleeding into the air-passages, but does not approve of tracheotomy and temporary plugging around the canula. In the case reported in the author's paper, the earlier steps of the operation, during which the flow of blood into the trachea can be readily prevented, were carried out whilst the patient was deeply under the influence of chloroform. Subsequently, as the pharyngeal cavity and the tumour were exposed, the anæsthetic was withheld, and the patient was allowed to recover to such a degree as to be able to reject blood from the back of the mouth.—*London Med. Record*, March 15, 1877.

Excision of the Epiphysal Cartilages for arresting the Growth of Bones, and correcting certain Deformities of the Skeleton.

M. OLLIER, from a series of experiments on animals, has, besides confirming the fact that the long bones increase in length by means of the epiphysal cartilages (cartilages de conjugaison) (*Revue Mensuelle de Médecine et de Chirurgie*), arrived at the following conclusions:—

1. Removal of the whole of the epiphysal cartilage leads to absolute arrest of development.

2. Partial removal leads to unequal development, and more or less curving of the bone.

3. Irritation of the cartilage is followed by the same results as removal, if the irritation be sufficient to destroy the cartilage or cause decided changes in the nutrition of its elements. Such changes follow inflammation of the ends of the diaphysis, and especially of the spongy tissue adjacent to the cartilage, and consist chiefly of proliferation of the cells, which either further degenerate into pus, or form granulation tissue. Cartilage thus changed never recovers its previous healthy condition. Direct irritation of the cartilage prevents any further growth of the bone, but indirect irritation leads to increase in both the length and thickness. Indirect irritation may be set up by lacerating or cauterizing the periosteum, perforating the osseous tissue at the ends of the diaphysis, or crushing the medulla.

The author has, furthermore, definitely made out that the two ends of a long bone do not take an equal share in increasing its length. For example, the ends of the bones which meet to form the elbow-joint contribute but little to the lengthening of the arm and forearm, whereas the ends of the bones forming the knee-joint especially contribute to the lengthening of the lower extremity. Knowing this, we can calculate approximately the amount of shortening that will follow the destruction of the different cartilages.

When this cartilage, lying between the diaphysis and epiphysis, which leads to the increase in the length of the bones, has been by any means completely destroyed, the bones are short and stunted; when it is only partially destroyed, they are more or less bent. Again, if the epiphysal cartilage of one or two parallel bones be destroyed, and if the other continue to grow, it will form an arc, the chord of which will be formed by the shortened bone; for example, if the lower epiphysal cartilage of the ulna be excised in a dog, the paw will deviate to the ulnar side, because of the increase in length and bending of the radius. This deviation may be arrested by excising the cartilage at the end of the radius as well. Further, if in a single bone, such as the femur, the outer part of the epiphysal cartilage be destroyed, and the inner part left untouched, the bone will become curved on account of the increase of the internal condyle, and this will lead to a projection inwards of the knee, similar to what we find in long-standing cases of genu valgum.

In one case (reported in the *Lyon Médical*, Dec. 22, 1872, by M. Poncet) of arrested development of the ulna due to osteitis in childhood, the radius was curved, the concave surface looking inwards, its head was dislocated outwards, and the hand remained in a supine position. The ulna of the healthy arm measured nine inches in length, but the ulna of the deformed arm only measured four-and-a-half inches. In another case, the radius of the one side was nearly two inches shorter than the radius of the other, and the ulna, by projecting an inch beyond the distal end of the radius, inclined the hand to the radial side. In one case of arrested development of the radius, a partial excision of the epiphysal cartilage of the ulna greatly improved the position of the hand.

Passing to the lower extremity, one case is mentioned in which the bones were irregular on account of infantile paralysis, and the condition was improved by irritating the diaphysis of the tibia, and thus increasing its length. In three cases, the lengthening of the tibia was so marked after the irritation that slight valgus resulted, necessitating a similar irritation of the end of the fibula. In some instances, the fibula is relatively so long that its head becomes displaced upwards, its lower end downwards, and thus, displacing the astragalus, leads to inversion of the foot. This deformity is best treated by removing the cartilages from both ends of the fibula.—*London Med. Record*, April 15, 1877.

The Operative Treatment of Genu Valgum.

Dr. **Alexander Ogston**, Surgeon to the Royal Infirmary at Aberdeen, Scotland, at a meeting of the Congress of German Surgeons, read a paper on this subject. He maintained that this disease, being caused by the abnormal length of the internal condyle of the femur, should receive, if possible, operative treatment. The best way to carry this idea into effect is to cut through the inner condyle with a pointed saw. A valvular opening is made with a long tenotomy knife, the entrance being eight or ten centimetres above the most protruding point of the condyle, and wide enough to admit the pointed saw. The incision crosses obliquely the anterior surface of the internal condyle of the femur and ends in the notch between the condyles; it is best made while the knee is bent. If the case be a bad one, and the patella is dislocated outward, the fine saw (Adams's) is then introduced, and the condyle is carefully sawn through till it is two-thirds separated, or even more; the saw is then withdrawn, the knee straightened, and the condyle completely broken off by forcible adduction of the leg. If the case be a slight one, without dislocation of the patella, it is better to straighten the knee before sawing the condyle. Three successful operations in which this method was adopted were reported, and in each the subsequent reaction was as slight as after an ordinary tenotomy of the tendo Achillis, while the position and movements of the knee were perfect. The lecturer distinctly recommended the operation only to those surgeons who were experienced in antiseptic surgery, and in bad cases in adults, where months or years of treatment might reasonably be expected to be saved by it.

Prof. **von Langenbeck** thought that mechanical treatment was quite sufficient in slight cases; and in serious cases he, as well as Billroth, had succeeded by dividing the external lateral ligament. Professor **Koenig** was willing to leave Ogston's plan to those who are well versed in antiseptic treatment. He recommended stretching at certain intervals, and considered it to be a matter of indifference whether the external ligament was torn or not. Dr. **Schede** was afraid that cutting the external ligament would result in a loose joint. Dr. von Langenbeck had met with nothing of the kind. Dr. **Heine** said that in serious cases he should prefer Ogston's method, the more so as Schede's wedge-shaped excision was attended by some difficulties, in spite of antiseptic treatment.—*Med. Examiner*, April 26, 1877.

OPHTHALMOLOGY AND OTOLOGY.

Treatment of Granular Lids by Acetate of Lead.

Dr. **Pierd'houy** (*Annali Universali di Med.*, Dec. 1876), after having passed in review the very numerous and various methods of treating this disease, expresses himself in favour of Buy's plan, which consists in the application of the neutral acetate of lead in the dry form to the granulations. The acetate should be perfectly fresh, and may be applied lightly with a brush to the granulations after everting the lids; before replacing them the surface should be brushed over with a mixture of oil and glycerine. The reaction is slight, and may be repeated many days consecutively till the granulations are quite flattened down. The plan is well adapted for those who can only be seen occasionally. It has a powerful effect in diminishing the amount of suppuration. It soon produces a cure, and there is no chance of the formation of cicatrices.—*Practitioner*, March, 1877.

Certain Parenchymatous Diseases of the Cornea.

Dr. W. Zehender's *Monatsblatter* for January contains a paper by E. RAEHLMANN on certain atypical parenchymatous diseases of the cornea, which produce striations and other linear opacities in the corneal substance. The paper is illustrated by ten lithographic sketches showing the various forms assumed by the opacities. Some of these are represented as stellate and moniliform, and others consist of parallel or radiating lines, in some cases crossed by a second set at right angles to the first, like the shading of a pencil drawing. The author believes these opacities to be due to the infiltration of the lymph-spaces of the cornea with turbid fluid, resulting from conjunctival, episcleral, and scleral inflammation. He has observed these opacities in episcleritis, as the result of cataract operations, and abrasions of the cornea, as well as an accompaniment of diseases of the ciliary region, and uveal tract, especially if of syphilitic origin, and in strumous ophthalmia, with ulceration of the cornea. The opacities were examined by a magnifying power of about five diameters under a focal illumination.

These opacities are always transient, leaving no traces of their existence after some weeks or months. They usually appear rapidly, remain stationary for a long time, and are afterwards quickly absorbed. They are always accompanied by injection of the vessels around the margin of the cornea. The appearance of these opacities is often accompanied by a slight but perceptible decrease of tension of the eyeball, and iritis is very liable to occur in conjunction with them.—*London Med. Record*, May 15, 1877.

Diabetic Cataract, with Sugar in the Crystalline Lens.

M. TEILLAIS, of Nantes, reports this remarkable case in the *Annales d'Oculistique de Bruxelles* (abstracted in *Journal de Médecine et de Chirurgie Pratiques*, Feb. 1877). It occurred in a young woman, aged 23, a diabetic for some years, much emaciated, and who secreted about 300 grammes of sugar daily. She had become blind in three weeks, but the complete blindness was preceded by frequent visual troubles which for two years had affected the patient intermittently. There appeared in her some little, though transitory, amelioration, after she had lost her sight, a fact which not unfrequently occurs in diabetic cataract. She had a double soft cataract. After having assured himself of the integrity of the deep membranes, M. Teillais yielded to the wish of the patient, who desired to submit herself to the chances of operation. Both eyes were operated upon, with an interval of ten days, by linear extraction. There was no accident, and the results of the operation were satisfactory. Five months later the improvement was maintained. Lastly, chemical examination of the crystalline lens demonstrated the presence of sugar. This last fact, often contested, is not less remarkable than the success obtained under the circumstances. We know, indeed, that many surgeons forbid this operation as useless and often dangerous. After this fact to the contrary, and a certain number of similar cases, we may be allowed to relieve diabetics of the most cruel of their infirmities.—*London Med. Record*, March 15, 1877.

Ectropium of both Upper Eyelids.

Prof. VON ZEHENDER, of Rostock, at the late meeting of the Congress of German Surgeons (*Med. Examiner*, May. 3, 1877) presented a boy, æt. 5, who had been suffering from serious ectropium of both upper eyelids, caused by caries of the orbital roof. Three weeks ago he had performed an operation for the ectropium on the right side by transplanting a large piece of skin (6 cm. by 3 cm.) taken from the upper arm of the same side. Dr. von Zehender asserted that pieces of skin of this size had not been often successfully transplanted before, and believed that they could only be satisfactorily employed after previous preparation. He therefore carefully removed with a pair of Cooper's scissors all the fat and loose tissue adhering to the piece of skin, making the inner surface look quite smooth. When thus prepared, it would apply itself very easily and closely to the surface of the wound it was destined to cover. Wolfe, of Glasgow, was the first to recommend this method, after having treated two such cases very successfully. Wadsworth, of Boston, had also operated in the same way, and with great success. These cases had to be discriminated from those operations in which the replacement was effected by multiple transplantation. Wolfe's cases above mentioned and the one now described were the only instances known in which the deficient part of the lid was restored by the application of a *large* and single piece of skin, and the case presented was the only one in which the operation had been performed on the upper lid.

A Means of Diagnosis of Anomalies in the Sound-conducting Apparatus.

Professor GRUBER, of Vienna, gives in the *Allgem. Wiener Mediz. Zeitung*, No. 7, 1877, a new means of diagnosis of anomalies of the tympanic cavity.

When the tuning fork is vibrating close to the external meatus of a healthy ear, and Valsalva's method is done, the sound is decreased by the increased outward tension of the membrana tympani. Gruber accordingly argues therefrom, that if the patient, when this experiment is made, do not notice that the sound is decreased, the membrane has already a *plus* tension outwards; while, if the patient hear better under the same condition, there is a *minus* tension.

If a vibrating tuning fork be placed on the head, and Valsalva's method be performed, the sound is increased to a normal ear, while, if there be *plus* tension, the sound is not changed: but if there be *minus* tension, it is decreased, as the membrane is made more capable of transmitting sounds than when lax.

The two methods act as controllers to each other, which gives this entirely subjective diagnosis much more importance.—*London Med. Record*, May 15, 1877.

MIDWIFERY AND GYNÆCOLOGY.

On Fibroid Tumour complicating Delivery.

Dr. PLAYFAIR, at a late meeting of the Obstetrical Society of London (*Lancet*, April 21, 1877), related three cases in which delivery was complicated by fibroid tumours. In the first case the presence of a fibroid tumour was recognized before marriage: it was so large as to fill the pelvis. Dr. Farre had succeeded in pushing it out of the pelvis into the abdominal cavity. Pregnancy was accompanied by much suffering, but delivery took place naturally. No hemorrhage followed, and the tumour, which immediately after delivery reached a foot above the pubes, had, six months after, diminished in size so that it could be discovered only by the bimanual method of examination. A second labour took place naturally. In the second case there were two large fibroid tumours situated at the fundus and sides of the uterus. The pains became feeble, and the forceps were resorted to. There was no post-partum hemorrhage; six months afterwards the presence of the fibroids could with difficulty be detected. The third case was a multipara. Labour had begun, and a large fibroid was discovered filling the pelvis, jammed down in front of the fœtal head. It had a diffuse broad base, growing apparently from the posterior wall of the uterus. The mass could not be removed by enucleation or the écraseur, and the space between it and the pubes was only an inch and three-quarters. The hand was introduced into the vagina, and pressure made on the tumour, with a view to push it up out of the pelvis. Eventually this object was attained, and the forceps were applied to the head, and delivery rapidly effected. No hemorrhage followed. This case was unsuited for enucleation on account of the character of the growth. In such cases action should be taken early, and an effort made at repression before having recourse to more desperate measures.

Dr. BARNES said that the difficulties and dangers associated with this complication varied the seat of the tumour. When the growth projected into the cavity of the uterus the danger was very great; when situated in the lower segment of the uterus, enormous. In the latter case the tumour may be crushed, sphacelate, and give rise to pyæmia. There can be no doubt that fibroid tumours may atrophy; they are occasionally expelled. Hemorrhage depends on the seat of the tumour.

Dr. BRAXTON HICKS said that not only small but large tumours opposing labour might be removed when situated in the lower segment of the uterus. He had removed successfully a mass as large as the fœtal head. Some cases which appeared unpromising during early pregnancy improved during the course of gestation, so as not to give any trouble. When these conditions are met with during active labour, they should be treated mechanically.

Dr. GODSON said that in a case under his care large masses were discharged, and the tumour disappeared.

Dr. MURRAY had seen relief to the bowels brought about by pressing the tumour from the pelvis by means of the hand introduced into the rectum.

Dr. DE GORREQUER GRIFFITH had seen three cases of this complication: two without a bad symptom; the third complicated by post-partum hemorrhage. During gestation the tumour increased, but afterwards diminished in size.

Dr. HAYES referred to a case in which death took place from hemorrhage before delivery. A fibroid, about the size of a Tangerine orange, which was easily enucleated after death, was found in the anterior wall of the cervix. The placenta was not prævia.

Dr. EDIS thought the best posture to effect reposition was the genu-pectoral.

After a few remarks from the President, Dr. PLAYFAIR replied, saying that post-partum hemorrhage occurred in some of these cases, but it did not appear to be so common as one would expect.

Ether-spray externally in Post-partum Hemorrhage.

Mr. W. HANDSELL GRIFFITHS was recently consulted in two cases of severe post-partum hemorrhage. In both cases every means had been adopted but unavailingly. It flashed across his mind in the first case to try the effect of the ether-spray, and accordingly he directed a large spray over the abdominal walls, along the spine, and over the genitals; the uterus at once responded, and the cessation of the hemorrhage was almost immediate. In the second case he lost no time in adopting a similar treatment, and with an equally successful result.

He has consulted several eminent obstetric practitioners in Dublin, and was informed by them that they are not aware that this treatment has been heretofore proposed. The advantages of the ether-spray over the application of cold water and the other means usually adopted in these cases must be patent to every practitioner of midwifery.—*Practitioner*, March, 1877.

The Causation, Diagnosis, and Treatment of Uretero-vaginal Fistula.

Uretero-vaginal fistulæ without any complications are rare. Only four cases are known, two reported by Simon, one by Alguré, and the fourth by Panas. LANDAU (*Archiv de Gynecol.*, Sept. 1876) now brings forward a fifth. These fistulæ are nearly always occasioned by obstetrical manœuvres, but in Landau's case it was caused by the pressure of a pessary. The symptoms of this affection are the running away of clear, transparent urine, and at the same time the voluntary passing of urine altered according to the time it has been in the bladder, the high as well as lateral situation of the fistula, and following the course of the ureter, and the possibility of passing a catheter both upwards and downwards.

Attempts to close the fistula have ordinarily failed. Simon tried paring the edges and uniting transversely, Alguré and Panas cauterized. These results were so bad that the classical works on the subject recommended as a chief and last resource closure of the vagina. Landau differs from this, and points out that success may result if the two following points are attended to: the avoiding any compression of the ureter and the allowing the continual flow of the urine.

Then the vivifying of the edges should not pass beyond the superior limits of the fistula on account of the proximity of the peritoneum. Landau suggests that a catheter be passed through the lower end of the ureter into the bladder and out at the urethra, then that the catheter be passed up the upper end of the ureter, then vivify the edges of the fistula laterally and bring them together in the long axis of the ureter. If the catheter cannot be passed through the lower part of the ureter into the bladder, that part of the ureter must be incised into the bladder, and so the urethro-vesical fistula be converted into a vesico-vaginal at the upper end of which the ureter opens, then pare the edges and bring them together as above described.—*Brit. and For. Med.-Chir. Rev.*, April, 1877.

Removal of large Fibroid Uterus and both Ovaries.

Mr. J. KNOWSLEY THORNTON, Surgeon to the Samaritan Free Hospital for Women and Children, reports (*Med. Times and Gaz.*, April 7, 1877) the case of a lady, aged 38, who was suffering from a much-enlarged uterus with outgrowths, the removal of which offered the only possible hope of cure. The operation was performed on January 10th, under bichloride of methylene. "The patient being placed on her back as for ovariotomy, I made an incision four inches long through the parietes, commencing about two inches below the navel. The hemorrhage was very free (even after the main bleeding points had been temporarily secured with Mr. Wells's artery forceps), and the flaccid red intestines lying immediately under the exposed peritoneum rendered the opening of the latter difficult, especially as the afternoon was very dark and foggy. When I had completed the section of the peritoneum, my attention was at once attracted by some small bubbles of gas and a drop of brown fluid on the surface of a coil of intestine. I seized it and sponged it, and found the point of my knife had slightly wounded it. I closed it by a continuous suture of fine silk carried backwards and forwards across the puncture through the peritoneal coat, and for some distance beyond each end of the wound.

"This mishap delayed the operation somewhat, and a good deal of intestine was forced out, so that I had to carry my incision an inch higher up, and even then had some difficulty in returning the intestines, the patient not passing well under the influence of the methylene, and keeping up a sort of gasping abdominal respiration. Passing my hand into the abdomen, I found the pelvic portion of the tumour so nearly filling its cavity that I could not dislodge it until I had pressed the mass on the left side through my incision, and used it as a lever by pressing it forcibly over the left iliac crest. This showed how hopeless any attempt to push up the pelvic portion without abdominal incision was. Having at last succeeded in getting the pelvic portion raised into the abdomen, I passed a strong double-string ligature through the left half of the mass just at its junction with the pelvic mass, and having tied each of the strings tightly (taking care that they crossed one another at their point of insertion), I cut away the left half, and thus gained room to transfix the broad ligament on each side with a double ligature of strong silk—each transfixion being made so that the silks when tied included the base of an ovary with the tube. The ovaries were then cut away—a cyst about the size of a pigeon's egg, which sprang from the right one, bursting during the removal.

"The broad ligament on the left side retracted, somewhat towards the tumour, and free hemorrhage occurred, requiring the application of a temporary clamp, after the removal of which one or two large vessels were tied separately. Nothing now remained but to deal with the remains of the uterine tumour, and this I did by transfixing the cervix just above the vagina with a curved needle armed with a double ligature of the same silk as I had previously used for the broad ligament. Each half was then firmly tied, and the mass cut away with the knife. No hemorrhage followed, but I thought the stump rather large, and pared it with the scissors; this caused a slight oozing, and I therefore passed one of the ligatures round the whole stump, and securely tied it. Very little blood was lost, and only the pelvis required sponging. I left a sponge over the uterine stump during the introduction of the seven silk sutures with which the incision was closed, and on withdrawing it found it dry, and therefore closed the abdomen. All the ligatures were cut off short, and left with the stumps free in the peritoneal cavity. The operation occupied rather more than an hour and a half, much time being lost from the difficulty in keeping the intestines back after closing the puncture—a difficulty increased by the necessity for handling them very carefully lest anything should be squeezed out between the sutures in the wounded part. On the twenty-seventh day after the operation, the patient was on the couch, and two days later went to the Convalescent Home.

"I believe this is the first case in which the uterus and both ovaries have been successfully removed, all the pedicles being ligatured with silk and left free in the peritoneum; and a few words are necessary as to my reason for adopting this method in preference to some of those which have proved successful in the hands of Wells, Keith, Péan, and others. I had watched the excellent results obtained in ovariotomy by Mr. Spencer Wells with the silk ligature, even when the stump of tissue left was considerable, and had confirmed my favourable opinion of it by several ovariotomies of my own in which I had used it; and I had also twice seen Mr. Wells successfully remove small fibroid outgrowths from the uterus after transfixing and ligaturing their base with thick Chinese silk.

"With such experiences, and having anxiously studied the published cases of Péan and others, I came to the conclusion that the silk ligature was the best thing to use for the pedicles in the case which I have recorded. It has the advantage of being applicable in all cases; whereas Mr. Wells's ovariotomy clamp, the various serre-nœuds and écraseurs, wire, or wire and pins, can only be used in certain special cases. The only one of these methods which it would have been possible to apply in my case would have been a sort of half intra-, half extra-peritoneal method with wire, écraseur, or serre-nœud; and I think the pedicle should be either entirely extra- or entirely intra-peritoneal. I prefer the latter, as I think there is less danger of septicæmic infection; and there is not the danger from hemorrhage when the clamp or wire separates a danger which experience shows to be by no means a small one.

"I venture to think this case proves that the silk ligature is to be depended upon, and is worthy of further trial. At the same time, I am fully aware that one successful case of this kind is no good ground for establishing the superiority of one method of treatment; and probably, as in ovariotomy, so in hysterotomy, it will be found advisable to apply different methods in different cases.

"I have not alluded to the cautery for division of the pedicle, because I have had no experience with it, and I cannot see that it possesses any advantage over the ligature, and it certainly has several disadvantages. The fact that it is sometimes necessary to ligature some vessels, after removing the cautery clamp, being, to my mind, the most serious objection, as the ligatures are applied to parts of which the vitality is already much weakened, if not destroyed, by the heat."

The Diagnosis of Cysts of the Broad Ligament.

Prof. GUSSEROW records (*Archiv für Gynäkologie*, B. ix. H. 3, and B. x. H. 1) a case of cyst of the broad ligament in which the cyst again filled after tapping, and was then extirpated. The patient was seventeen years old, had menstruated regularly since the age of fourteen, and the abdomen had been enlarging for two years. The abdomen was greatly distended, and uniform fluctuation extended all over it. In the middle line there was dulness up to a hand's-breadth from the ensiform cartilage. In the flanks there was resonance only on the left side, low down. The uterus was movable, turned rather to the left side. A segment of the tumour could be reached to the right of the cervix. The tumour was emptied by tapping, 70 ccm. of watery fluid being removed. It had a specific gravity of 1002, contained a small quantity of albumen and salts, no paralbumen nor mucin. On bimanual examination after the tapping, both ovaries could be made out, the right ovary being somewhat in front and to the right of the fundus, towards the symphysis. Examination by half the hand in the rectum revealed nothing further; no trace of the cyst or adhesions could be detected. The diagnosis was that of a cyst of the broad ligament on the right side. No return of the swelling was observed for four months, but it then began to increase again; and at the end of eight months was fully as large as before. Extirpation was therefore resolved on. At the operation two adhesions to the omentum were divided, and the cyst emptied of a fluid similar to that found before. Contrary to the diagnosis, the pedicle was found to be on the left side. It was very short, and 16 cms. ($6\frac{1}{4}$ inches) broad, consisting evidently of two layers of peritoneum, which were inseparable from the outer cyst-wall. It was tied by ten catgut sutures, and some large veins in it were also tied with silk. The patient recovered without any bad symptoms, the temperature never rising above 37.5° C. The cyst was quite simple, and was lined with cylindrical ciliated epithelium. No muscular fibres were found in its wall. The Fallopian tube was stretched over the cyst-wall, and extended to a length of 25 cm. ($9\frac{3}{4}$ inches). Both ovaries were felt to be intact after the cyst had been removed.

The author reviews the various signs which are given as distinctive of cysts of broad ligament—namely, that they occur in young women whose general health is little affected, contain a watery fluid of a specific gravity less than 1005, free from paralbumen or mucin, that the epithelial lining is ciliated in parts, that the cyst-wall contains involuntary muscular fibres, is often very thick, and is separable into two layers. He believes that none of these are absolutely distinctive during life, although they are generally true, and considers that the diagnosis cannot be made absolute, except by feeling both ovaries to be of normal size, after the emptying of the cyst. He has himself found, in some cases of difficult diagnosis, the fluid of a true ovarian cyst to be poor in albumen, and quite free from paralbumen, and on the other hand has, in two cases, found paralbumen present in ascitic fluid. In confirmation of this, he quotes the experience of Westphalen and Heine. He points out that the opinion of Mr. Spencer Wells and Dr. Bantock, that cysts of the broad ligament never fill again after tapping, is not fully confirmed by experience, as shown in the case recorded. Moreover, Dr. Charles Clay, out of forty cases in which the fluid removed was thin and watery, observed a refilling in six; Dr. Keith has extirpated a cyst of this kind which had refilled five times, and Spiegelberg has also removed one after repeated tapping. The nature of the fluid will generally establish a correct diagnosis, and Koeberle, who considers that such cysts should always be extirpated, has successfully removed two, by enucleating them from their peritoneal investment, having previously made a right diagnosis. But in one case of cyst of the broad ligament exactly described by Spiegelberg (*Archiv für Gynäk.* i. s. 482), which had a thick wall of two layers, containing involuntary muscular fibres and lined by ciliated epithelium, the fluid contained resembled that of an ovarian cyst, and contained paralbumen and cholesterine. As to the source of cysts of the broad ligament, the author regards the question as unsettled as yet, whether they originate from the parovarium, or, as maintained by Waldeyer, from a remnant of the Wolffian body.—*Obstetrical Journal of Great Britain*, April, 1877.

Three hundred additional Cases of Ovariotomy: with Remarks on Drainage of the Peritoneal Cavity.

Mr. T. SPENCER WELLS, at a late meeting of the Royal Medical and Chirurgical Society (*British Medical Journal*, March 3, 1877) read a paper with the above title. He had arranged in a table, similar in form to those in which he had brought five hundred cases of ovariotomy before the Society between 1859 and 1872, three hundred additional cases, representing the whole of his practice, from the five hundredth to the eight hundredth case; distinguishing the cases performed in the Samaritan Hospital from those in private houses and in nursing institutions. The mortality in the sixth series of one hundred cases was twenty-eight; in the seventh and eighth, twenty-four. This very nearly corresponded with the general mortality in the five hundred cases previously reported. But the author believed that the latter series comprised many more operations, in proportion, performed under very unfavourable or almost hopeless conditions. In many cases, where formerly he thought it right to put so very unfavourable a prognosis before a patient and her advisers that they probably did not desire or approve of operation, he had latterly been encouraged by recoveries in some cases apparently almost hopeless to express a more hopeful opinion; and, although in some cases very unexpected recoveries had been recorded, the result had often been what was feared, and the influence upon the number of deaths in proportion to the recoveries was quite appreciable. The author then discussed the influence of drainage of the peritoneal cavity—this most important of recent modifications of operative procedure—upon the results. He traced the history of the practice from the early days of ovariotomy, when drainage by the ligature securing the pedicle was the rule of practice, to its disuse when the extraperitoneal treatment of the pedicle and the intraperitoneal method by ligature or cautery were very generally adopted. He considered the occasional use of puncture and drainage, with or without simple or antiseptic injections, when called for after operation, to be no foundation for recent recommendations, to prepare at the time of operation for drainage or injection in every case. Of the three hundred cases now brought before the Society, he had only made provision for drainage at the time of the operation in eight; and in only eleven other cases did fluid afterwards escape by opening of some portion of the wound, or by vaginal puncture. In some few of the fatal cases, he thought either primary or secondary drainage might have been useful; but he believed drainage should not be a general practice in ovariotomy, but should be reserved for the exceptional cases where collections of blood or serum might be expected to follow the operation. Mr. Wells then described the different modes of draining, and of using simple or antiseptic injections, reserving for another communication the important question of the more complete adoption of antiseptic precautions before, during, and after ovariotomy.

Mr. Bryant had used drainage in five cases; in four the result was good, and in three of them he had no doubt that it was due to the use of the drainage-tube. There were in the three cases extensive adhesions, the removal of which was followed by much redness of the peritoneum and considerable oozing of blood. He had used a glass tube in three of the cases, and a hardened India-rubber tube in the other.

Mr. Thomas Smith said that he could ask Mr. Wells a number of questions, but would confine himself to a few. It was possible that certain statistical results might be obtained at the expense of the sacrifice of the lives of those affected; any such statistics as those of Mr. Wells might lead more timid operators to refuse bad cases, and attempt to obtain favourable tables of statistics—an endeavour which he deprecated. On the other hand, the earlier ovariotomy statistics of the Samaritan Hospital had been compared with those of the large hospitals, to show that, while in the former the mortality had been 21 per cent., in the latter it was 76 per cent. But the success in the general hospitals was not so great then as now: and, further, there were two ways of estimating the fatal results of ovariotomy. In the general hospitals, all the deaths were put down as fatal cases of ovariotomy—there being included under this head three classes: 1, completed ovariotomy; 2, cases where the operation was proceeded with to a certain extent but not complete; 3, cases where only an exploratory excision was made. The statistics of the Samaritan Hospital included only cases of completed ovariotomy. He thought that the rate of mortality would be much increased by taking into account the incompleted operations and exploratory incisions. Again, the experience of one most skilled in the operation was compared with that of various men, some well qualified to perform it, and others as disqualified. There were some things which the general hospitals could do, and some which they could not. They could, no doubt, obtain as good sanitary conditions as at the Samaritan Hospital; but they could not obtain such good nursing and medical supervision. The success of the Samaritan Hospital was a personal success; it depended on experience, on a sound and quick exercise of judgment, on the possession of resources to meet emergencies and of courage to face dangers; and with these there was a modesty which did not seek to make success in ovariotomy an occasion of public display. To these qualities Mr. Wells owed his success; and he had probably done more to diminish suffering than any other man. He would ask whether Mr. Wells introduced the drainage-tube because much fluid was present or because much was expected; and how he would deal with a cyst behind the broad ligament.

Mr. Hulke said that some years ago several cases of ovariotomy were performed in the Middlesex Hospital, the patients being placed in the general wards; and all, he believed were fatal. Since the patients operated on had been placed in a special ward, the mortality had been much less; he had had four recoveries out of six operations.

Dr. GRAILY HEWITT congratulated Mr. Wells on the success which he had obtained. He had himself done about twenty-five completed operations; but his results, though satisfactory, were less so than those of Mr. Wells. He thought that Mr. Wells was correct in attributing the comparatively high mortality in his last three hundred cases to the large proportion of bad cases sent to him. With regard to the management of the pedicle, he was in favour of bringing it outside the wound. Any room that might exist for improvement of the operation lay in the treatment of the pedicle.

Sir JAMES PAGET said that it was most gratifying to him that on the last occasion of his presiding at an ordinary meeting of the Society, such a paper as that of Mr. Wells should have been read. He regarded ovariotomy, as practised by Mr. Wells, as one of the greatest achievements of modern surgery; it must be measured not only by Mr. Wells's own success, but by the greatly increased success of all other surgeons. The improvement in ovariotomy had made surgeons much wiser than they previously were on all matters relating to peritoneal surgery; and not only so, but the influence for good had been extended to surgery in general.

Mr. SPENCER WELLS, in reply, said it did not follow that, because a great deal of fluid escaped when a tube was used, as much fluid would collect if a tube had not been used. It was quite possible that the presence of a tube might lead to the secretion of the fluid which escaped, or at least increase secretion. He should not use a tube simply because ascites had been present, or ovarian fluid had been free in the peritoneal cavity. He should restrict its use to cases where the peritoneal cavity could not be completely cleansed, or where some bleeding might be feared after closure of the abdominal wall. If fluid collected some days after the operation, and formed a swelling between the uterus and the rectum, it could easily be removed by a trocar introduced through the vaginal wall. In cases of mesenteric cysts, or cysts of the broad ligament, the treatment by enucleation or drainage must be decided by the peculiarities of each case. The publication of medical details, in the annual reports of hospitals circulated to the public, was open to very grave objection, and Mr. Wells had opposed the use of such details in the reports of the Samaritan Hospital; but he did believe that they had been of great use in stimulating the surgeons of general hospitals to a generous rivalry: and in proving that, if they did not wish to be outdone by smaller institutions, they must pay equal attention to the sanitary condition of the wards, to the nursing of the patients, and to all the details of management which could influence results. The success in the Samaritan Hospital could not be now, as it might have been before perhaps, what Mr. Smith called a "personal success;" for, out of the fifty-five operations performed in 1876, his colleagues, Mr. Thornton and Dr. Bantock, had contributed fourteen recoveries and only one death; whereas, of his own forty cases in the year, four had died. The practice of grouping together cases of completed ovariotomy with cases of incompleted operations, or of mere exploratory incisions, could not be justified. It would be absurd to say that a patient who recovered for a time after an incision in the abdominal wall and the escape of some fluid from the peritoneum, was a successful case of ovariotomy—no ovarian tumour having been removed, or perhaps existed. And, whether the result in statistical tables was favourable or the reverse, an incomplete operation should be recorded in a separate list, and should not be allowed to lead to false estimates of the mortality of ovariotomy when completed. The important question of antiseptics in this operation must be left for further observation. Mr. Wells, on completing his eight hundredth operation, had almost decided to try one hundred cases in succession with every antiseptic precaution; and if he had done so, and had attained the same result as he had done without any alteration in his former practice, the conclusion would have been quite startling; for he had done twenty-seven cases since the eight hundredth, and so far not one had died. If this had happened under antiseptics, it would have been almost impossible to resist the conclusion that it was something more than a coincidence. Mr. Wells thanked the Society for the manner in which his paper had been received, and especially thanked Sir James Paget for his very kind remarks, which would more than repay any surgeon for years of hard work.

On Twenty-five Cases of Ovariotomy, with some Remarks on the Causes and Treatment of the Fever so frequently following the Operation.

At a late meeting of the Royal Medical and Chirurgical Society, Mr. J. Knowsley Thornton read (*Lancet*, June 2, 1876) a paper with this title referring to the smallness of the table of cases as compared with the one lately given to the Society by Mr. Spencer Wells, the author said it was nevertheless impossible to deal with all the features of interest in the individual cases. For many of the cases he was indebted to Mr. Wells, and to the fact that he had assisted Mr. Wells in the greater number of the 300 cases he was indebted for much of the knowledge which had enabled him to attain fair success. The author then drew attention to the fever so frequently following ovariotomy—defining fever as any temperature between 100° and 103° F.: above this, high fever. He believed there was a simple fever distinct from that caused by peritonitis or septicæmia, but liable to lead to serious lesions in important organs if not checked. Attributing this form of fever chiefly to the sudden increase in the volume of blood circulating in the body after the removal of the large circulating area contained in the tumour, he pointed to the various organs which might suffer, drawing especial attention to the brain as receiving a large blood-supply. The treatment of this form of fever must be especially directed to the control of the circulation and lowering of temperature. The readiest means of effecting this object was by the application of dry cold to the head. Briefly sketching the history of the use of coiled tubing conveying iced water, he showed how he was led to the use of the ice-water cap for the fever after ovariotomy. While giving due praise to the use of bloodletting and aconite, he believed if the ice-water cap was used early and efficiently they could be dispensed with. The author then referred to the differential diagnosis of this simple fever and the fever accompanying peritonitis or septicæmia, drawing especial attention to the tranquil expression of the patient with the former. He then referred to some of the cases in the table to illustrate the use of the ice-water cap (of which an engraving accompanied the paper), remarking that they were none of them quite typical of the condition he had described, because, having had considerable experience in the after-treatment of cases of ovariotomy before he operated himself, he always put on the cap early, "prevention being better than cure." In conclusion he gave a short analysis of the cases in the table, alluding especially to the large proportion of complicated cases and double operations, in spite of which the mortality was only 28 per cent. Some of the cases were almost hopeless from the nature of the adhesions and the state of the patient, but he thought right to give them the last chance of life.

Mr. Spencer Wells asked for the experience of other surgeons with regard to the effect of the application of ice to the head in other cases of traumatic fever. It was now systematically employed at the Samaritan Hospital, and he was led to its employment by the fact that much of the danger of ovariotomy was due to fever rather than to peritonitis. He at first used the wet pack, a method which had the great disadvantage of disturbing the patient; then, on Dr. Richardson's suggestion, he employed applications of ice to the neck, by a sort of collar containing ice. Then Mr. Thornton suggested the adaptation of the India-rubber coil in the form of a cap; and Mr. Wells was certain this method unquestionably lessened the mortality after ovariotomy. One objection to its use in private practice lay in the quantity of ice it required, and the constant attention on the part of the nurse. Another, and more economical, method was the use of a sort of helmet containing ice.

Sir JOSEPH FAYRER considered the invention to be a most valuable one, and pointed out its great utility in cases of ardent fever, and of insolation. In such cases the use of cold affusion and bladders containing ice would be superseded by this new appliance.

Dr. HEYWOOD SMITH agreed with Mr. Thornton that the fever was generally more marked in young subjects, and where the ovarian cyst was freely supplied with blood. He had himself used the ice-cap with great benefit, and thought that venesection, when performed at the proper period, was of great value in lowering the rate of the pulse. But it should be performed only when it was clearly indicated. He inquired as to the *modus operandi* of the application of ice. He had known such application to the sacrum to have the effect of increasing the menstrual flow, as if it acted directly upon the nerve-centre controlling the blood-supply to the uterus; and he had also seen profuse uterine hemorrhage checked by hot applications to the region. He referred to the tincture of veratrum viride as being equally useful with aconite in lowering the pulse.

Dr. CHARLES WEST said that the great value of the paper lay in the suggestions it contained as to other matters beyond that simply of ovariotomy. Thus it raised the question of fever *per se;* and the distinctions between simple fever and fever complicated with septicæmia, peritonitis, etc., were clearly laid down. One of the tendencies of the present cultivation of high scientific knowledge was to neglect those signs of the broad differences in fevers which gave medicine so high a position in the days of Sydenham. He agreed with Sir Joseph Fayrer as to the great value of the ice-water cap in insolation, which was not uncommon in children even in this country.

Mr. KNOWSLEY THORNTON said that he claimed no originality for the cap. The use of a coil to transmit iced water for the purpose of reduction of body-heat had been advocated by Dr. Roberts, of Manchester, and the cap was in the first instance devised by a workman at Edinburgh. As a rule, three or four days sufficed to reduce the temperature, and he thought that the tendency to sickness was as certainly controlled by the cap as by the application of ice to the neck. He agreed with Dr. Routh, that bleeding was contraindicated in septicæmia, and with Dr. H. Smith, that it was only usefully employed at a certain time. He admitted that aconite was useful in cases which were not examples of septicæmia; and as to the method of ice employment, he had followed Mr. Wells's practice. He agreed as to the influence of the nervous system in exciting and maintaining the febrile state, and thought that quiet was of paramount importance to the patients. The question as to the comparative utility of the clamp and the ligature in securing the pedicle was not yet ripe for decision. In the present series of cases many were examples of double ovariotomy, and in some the ligatures had been used for one pedicle, and the clamp for the other.

AMERICAN INTELLIGENCE.

ORIGINAL COMMUNICATIONS.

Imperforate Anus; the Rectum opening into the Vulva; successful Operation. By W. N. McCoy, M.D., of Jeffersonville, Indiana.

In July, 1875, Mrs. B—— consulted me in regard to her daughter, aged six years, having an imperforate anus, the feces discharging involuntarily through the vulva. The mother has given birth to nine children, all delivered at full term, and, with the one exception, perfectly developed. The mother had never met with an accident, nor was there anything unusual with any of her pregnancies.

The malformation was discovered soon after birth, and the physician's attention called to it, but as the rectum had been freely evacuated, and there was no symptom of bowel obstruction, an operation was postponed from time to time until the parents changed their residence from Southern Kentucky to this city.

On examination there was no indication of an anus; the integument being continuous from side to side. Drawing downward the posterior commissure, the recto-vulvar opening was found large enough to admit a No. 12 sound. A strong probe, bent, was introduced through this opening, the point passed downward into the pouch of the rectum, and by pressure could be distinctly felt through the perineal wall.

On considering the nature of the case I proposed establishing an artificial anus at the normal point, and, if successful, afterward to close the vulvar opening. Dr. F. A. Seymour, whose counsel I sought, fully concurred in my views, and with his assistance I operated August 3d, 1875.

The child being anæsthetized, a No. 12 flexible sound with the proper curve was passed through the recto-vulvar opening into the pouch below. The sound being firmly pressed on the perineum served as a guide to the incision. The latter was made an inch long in the raphé midway between the commissure of the vagina and the point of the coccyx. Dividing the tissues to the depth of half an inch, I opened into the cavity of the pelvis. Introducing the finger about half an inch further, I could distinctly feel the rectal pouch, which was somewhat conical in shape and slightly movable. Pressure being made downward and forward with the sound, at the same time with traction by the finger from behind, the intestine was brought within the incision, where it was firmly held by the sound until opened to the full extent of the incision. But before completing the division, to prevent retraction, the edges of the intestine were secured to the skin and superficial integument, three silver sutures being inserted. Six sutures in all were used, completing the operation.

Not more than two ounces of blood were lost, although the operation was somewhat retarded by the frequent discharge of feces.

To prevent the closure of the artificial opening and overcome excessive contraction, a trouble always experienced in such cases, bougies of slippery-elm bark two inches long and half an inch in diameter were inserted each day for six days, and retained in position, being removed only to permit injections and evacuations.

The discharges from the artificial opening from the first were very limited; three-fourths at least passing by the vulvar outlet. The healing was perfected on the sixth day, when the last sutures were removed.

The bougies were occasionally introduced and retained for a day or so at a time till the first of September, when it became impossible to introduce them, so painful was it to the child. On examination I found the orifice so firmly closed that it was with difficulty a No. 10 sound could be introduced. There was now almost no discharge of feces through the perineal opening. I was satisfied that there was some obstruction above, which prevented the descent of the feces to the artificial orifice, and gave it direction toward the recto-vulvar. I determined to enlarge the opening, overcome if possible any obstruction found, and then introduce a rectal tube; the tube to be kept in position until the parts should be healed and the tendency to extreme contraction overcome. The second operation was performed, with the assistance of Dr. Seymour, September 6th, 1875.

The child was brought sufficiently under the influence of chloroform, and the perineal opening was enlarged in the mesial line posteriorly three-fourths of an inch. Passing the finger into the rectum an obstruction was discovered on a line with the lower margin of the recto-vulvar opening, consisting of a fold of intestinal wall, which, having looped downward, was drawn tightly across the canal, forming a kind of valvular arrangement, giving the feces direction toward the abnormal outlet.

The obstruction was posterior, and occupied about three-fourths of the calibre of the rectum. By steady backward pressure with the finger, this constriction gave way and the tube was passed into position without difficulty, where it was retained continuously for eight weeks, affording a complete passage-way for the feces, none passing by way of the vulvar opening. The bowel was injected with warm water before each evacuation, and the tube kept clear. During the first four weeks of the retention of the tube, the recto-vulvar opening was completely closed by granulation, after three successive cauterizations with nitrate of silver, the child being kept in the recumbent position.

The tube came out accidently at the end of eight weeks, but was never replaced, as the evacuations were free, easy, and at proper intervals. The power of retention is perfect.

The tube used was made of block-tin hammered to a sheet. Its length was two and a half inches, so that when inserted the inner end extended well into the bowel, thus intercepting the feces before they could reach the abnormal outlet. Its diameter was about five-eighths of an inch. Attached to the lower or outer extremity was a flange, oblong from before backward, at either end of which was a fenestrum, through which when the tube was *in situ*, tapes were passed and secured to an abdominal bandage; there being two tapes in front to pass on either side of the genitalia, and one tape behind.

Menstruation by the Pedicle, after Ovariotomy. By WALTER F. ATLEE, M.D., of Philadelphia.

In a number of medical periodicals an account of *menstruation by the pedicle in a case of ovariotomy* has been recently recorded as a phenomenon most remarkable and extraordinary. The account was published first in the *Annales de Gynécologie.*

This menstruation by the pedicle has taken place to my knowledge several times after ovariotomy in the practice of my father, Dr. John L. Atlee, of Lancaster, Penna. The following extract from a letter will be found particularly interesting in this connection. It was addressed to me on the 19th of May of this year, by a lady of Morristown, N. J., upon whom I performed ovariotomy in June, 1875. The pedicle was very short, so short, indeed, that the clamp seemed to touch the left horn of the womb.

"I shall try and write you as plainly as I can just how I have been since the operation. One small place about the centre of the scar, left by the clamp, has never entirely healed; for some months, except when discharging, the exact spot was not perceptible without the closest scrutiny. Since then it has assumed the appearance of a pimple, which has increased in size, and always has a bright-red colour, and, just before it breaks, a purplish-red appearance. The discharge always occurs at the time of my monthly sickness—sometimes commencing the day previous—discharging only a few drops at a time, followed by blood in the same manner, only there is more of the blood. The discharge is thin, clear, and watery—almost sparkling—looks as though it might be sticky, but never has had any appearance of corruption. I should think the discharge each time would amount to about a half-teaspoonful, and about double the amount of blood. Latterly it has broken at other times, then only the clear liquid; but has never failed to break at the time of my sickness since I had the operation."

Paper Splints. By M. R. Speare, M.D., of Rochester, New York.

For a number of years I have been using a fixed splint of my own design for fracture of the lower extremity and sprains of the ankle-joint. For the purpose I employ strong manilla-paper and book-binders' starch, which consists of flour and water boiled to the consistency of jelly. I first prepare my paper by cutting it into strips long enough to encircle the limb at its greatest circumference, and varying from half an inch to an inch and a quarter in width. Having an assistant with the starch and a brush ready, I apply a flannel roller as far as I wish the splint to extend; then smear this with the starch, apply the strips of paper—after starching—the same as a many-tailed bandage, brush this over with starch again, and apply another layer as before, until I get the required thickness, which is usually six or seven layers, according to the firmness of the paper used. The whole process will occupy about fifteen minutes.

When this is dry, which will take two or three hours by the aid of hot bricks or sand-bags on each side of the splint, it is very light and comfortable, fitting as nicely as a stocking, and is as firm as the same thickness of wood. Dr. J. W. Whitbeck, who has used this dressing, declares it to be far superior to plaster of Paris or the old-fashioned starch bandage.

Note on the Use of Ergot in Urethral Hemorrhage. By GEO. HALSTED BOYLAND, M. A., M.D.

Few anatomical structures are more delicate than the male urethra; few membranes are more highly organized in their physiological action or more susceptible to pathological process. Reaction, therefore, follows with the utmost facility; indeed, the sensitiveness is so extreme in certain cases requiring antiphlogistic treatment that the mildest injection is at times productive of urethral hemorrhage. Several patients of this class have fallen to my charge with whom all injections had to be abandoned and cold compresses or the ice pack resorted to. These usually afford relief, unless the hemorrhage having continued some time has become aggravated.

The following note shows the value of ergot under such circumstances:—

D. W., coloured, aged 21, of nervo-sanguineous temperament, by occupation an hostler, called on me Nov. 22, 1876; suffering from gonorrhœa. Ordered to be taken per orem: R. Potas. brom. ʒj; tinct. anodyn. simpl. gtt. xx; aquæ dest. lauro cerasi, ℥ss; aquæ dest. simpl. ℥ijss. M. S. A teaspoonful hourly. To use as an injection: R. Acet. plumbi, ʒss; aquæ destil. ℥iij. M. S. Thrice daily.

Dec. 7th. Patient called again complaining of pain caused by injection, and exhibiting a few drops of blood at the meatus urinarius. Discontinued the above, and instead employed: R. Sulph. morph. grs. ij; sub. nit. bismuth., ℈ij; aquæ destil. ℥iv. M. S. Inject thrice daily.

12th. Seemed better.

Jan. 3d. He came to me with a copious discharge of blood which, according to his statement, had continued for some time without interruption. Last night it had dropped incessantly until the morning. Upon examination found blood of a medium bright-red colour dropping rapidly from the urethra. Patient had not slept at all on account of a constant desire to urinate, and urinating a little at each attempt. This strangury had been brought about by the active habits his vocation entailed, and a free use of gin notwithstanding my advice to the contrary. His physician, he would reply, had told him that "gin was good for it." To demonstrate the fallacy of this idea, which obtains universal belief among the lower classes, it is only necessary to mention the tendency to kidney irritation, and the acrid state of the urine burning and cutting the passages, when our chief object should be to prevent these very symptoms. The patient's general condition was anæmic, although his pulse was strong, and not very rapid, owing to alcoholism. Advised him to return home and apply cold compresses. Visited him one hour later, and found him still unrelieved. Prescribed: R. Fd. ext. ergot, ℥j. S. Take 15 drops every 2 hours, and rest in bed.

5th. Saw D. W. out, and attending to his duties; said he had not felt so well for weeks, having taken in all six doses of the ergot. Medicine stopped.

8th. Had a slight return of the bloody discharge in the morning, which the ergot again checked, this time permanently. Saw this man for the last time March 7th, cured.

The chemico-physiological action of secale cornutum upon the capillaries of the urethra is analogous to that upon the arterioles of the uterus. If the above somewhat perplexing case will serve as a guide to the arrest of obstinate urethral hemorrhage the author's aim will have been reached.

DOMESTIC SUMMARY.

Successful Case of Laparotomy for Intussusception.

Dr. H. B. Sands, Professor of Anatomy in the College of Physicians and Surgeons, New York, reports (*New York Medical Journal*, June, 1877) the following case of intussusception successfully operated upon by abdominal section:—

Mary L., aged six months, on the morning of March 11, 1877, while nursing. was suddenly attacked with tenesmus and abdominal pain; soon after vomiting set in, and occurred whenever the child was fed. The straining became more violent, and was attended with escape of bloody mucus. No feculent matter was passed. During the afternoon the symptoms became aggravated, and Dr. Sands was called in. He found the patient in great pain, and in a condition approaching collapse; the pulse extremely rapid; muscular debility marked, and tenesmus severe and frequent. On flexing the thighs and relaxing the abdominal muscles, an elongated tumour could be felt, extending in a straight line from the left iliac region to the left hypochondrium. The upper part of this tumour was movable, and could be pushed a little beyond the median line. It was tolerably firm and inelastic, tender on pressure, and dull on percussion. The abdomen was not tympanitic, and the detection of the tumour was quite easy. On inserting the finger into the rectum, the invaginated intestine was at once discovered, reaching down nearly to the anus, and forming a mass that filled the rectum completely. The lower orifice of the intussuscepted gut could be distinguished as a depression, situated somewhat laterally; and the finger, as high as it could reach, passed freely between the mucous membrane of the rectum and the invagination. Furthermore, by conjoined manipulation, with the finger of one hand in the rectum and with the other hand upon the abdomen, the continuity of the rectal and the abdominal tumour could be distinctly appreciated.

Dr. Sands used the ordinary methods of reducing the invaginated intestine, as long as he deemed it prudent, with only partial success. The abdominal tumour had so far disappeared that it could no longer be discovered by palpation, nor could the invaginated gut now be found in the rectum, yet, as he could distinctly make out the presence of a small, firm, and movable swelling at the level of the umbilicus, he felt sure that a certain portion of intestine was yet unreduced. Convinced that the case ought not to be left to nature, nor treated with medicine, he determined to perform laparotomy.

Dr. Sands opened the abdomen by an incision about two inches in length, extending downward from a point just below the umbilicus. By introducing two fingers through the wound, he was able to make the necessary exploration, and at the same time to prevent the escape of the small intestine. After a little delay, a tumour was discovered in the right iliac fossa, which afterward proved to be the intussuscepted mass. Finding it impossible to examine this satisfactorily without withdrawing it from the abdomen, he did so, after having necessarily permitted the escape of a large proportion of the small intestine. It was then apparent that the intussusception was of that variety which Brinton has called ileo-cæcal, and that the invagination had been greatly reduced in size by the methods of inflation and injection. What remained, and constituted the mass exposed by dissection, was an intussusception of the caecum and terminal portion of the ileum into the commencement of the ascending colon. The mass was about an inch and a half in length, and the inversion and swelling of the caecum appeared to have produced complete obstruction of the ileo-caecal valve. Although the intussuscepted part was short, he found considerable difficulty in extricating it, on account of the rigidity and swelling of the intestinal coats, which were dark-coloured and ecchymotic. Disinvagination was effected mainly by pulling the outer or ensheathing layer of the intestine downward, and by squeezing the lower end of the intussuscepted gut. Some force had to be employed at this stage of the operation, and it was feared that the intestine might be ruptured in the attempt to reduce it; but, with caution and perseverance, the parts were gradually unfolded, until finally the vermiform appendix was extruded, and the normal relations were fully re-established. The ileo-caecal valve, as felt through the intestinal walls, appeared somewhat thickened, and at first was thought to be the seat of a polypoid growth; but this impression was probably erroneous. There were no adhesions or signs of general peritonitis, and the thickening and ecchymosis of the intestinal walls were limited to the intussuscepted parts. The mass of large and small intestine that now lay outside the abdomen was gradually returned, and the wound closed with five silver sutures, embracing the peritoneum. Additional support was afforded by the use of adhesive plaster and a flannel bandage. The replacement of the small intestine was a difficult step in the operation, but was accomplished without resorting to undue violence.

The subsequent progress of the case was highly satisfactory. Pain, vomiting, tenesmus, and the discharge of bloody mucus, ceased immediately after the operation, and did not recur. During the first twenty-four hours there was slight nausea, probably due to ether. The bowels moved naturally on the second day. The shock following the operation was not severe, but the infant was too weak to nurse before the fourth day. Meanwhile it was fed regularly, and took occasionally a drop of laudanum, or a little brandy and water. Beyond this, no medicine was given. On the fifth day two of the silver sutures were removed; but as the wound was not firmly united, the rest were allowed to remain, and were not all removed until the fourteenth day. At the first dressing the child struggled violently, and some gaping took place of the central portion of the wound. This occurrence, it was feared, would prove unfortunate, but no harm resulted, and recovery took place without the slightest symptom of peritonitis. At the present date the child is in excellent health, and the cicatrix is quite firm.

Before endeavouring to estimate the value of abdominal section in cases of intussusception, Dr. Sands considers what reasonable hopes of success are afforded by milder and safer means, and concludes by assuming that the following facts are well established:—

Intussusception is a disease which, if left to its natural course, terminates fatally in a large majority of cases. In infants the mortality is especially high, being, so far as statistics inform us, not less than eighty-six per cent.[1] of the entire number, whether subjected to treatment or not. In a small minority of cases the patients recover after sloughing of the intussuscepted part, although recovery is rarely permanent and complete. Medicine has little or no effect upon the disease. Replacement by the introduction of a sound, by inflation, or by injection, can be effected in a certain number of cases in which the obstruction is seated in the large intestine, but in a considerable number it will be found impracticable.

In considering the applicability of abdominal section to the various forms of intussusception, Dr. Sands is disposed to maintain that, unless future experience shall prove that the danger of the operation itself is unwarrantable, it would seem to be indicated, provided other expedients had failed:

---

[1] Leichtenstern, Vierteljahrs. f. d. Prak. Heilk., Bd. cxxi. p. 17.

1. In cases of chronic intussusception, in which there is reason to believe that the condition is one of simple invagination, unaccompanied by adhesion or other structural changes that would prevent reduction. In such cases, as Mr. Hutchinson has justly observed, the tendency to spontaneous cure by gangrene is very slight, while in the absence of inflammation the operation may be undertaken with the least possible risk. Should it be neglected, the patient will probably die either from pain and exhaustion, or in consequence of the supervention of the acute or inflammatory stage.

2. In acute cases, whether primary or secondary, if seen soon after the commencement of the attack. At what precise period the surgeon ought to refuse to perform an operation it is at present impossible to determine, but there can be no doubt that, the earlier the operation is done, the greater will be the chances of success. On the other hand, when the strangulation is tight, the parts speedily become so altered by swelling, adhesion, and softening, that no amount of force short of that capable of causing rupture will suffice to liberate them. A case is recorded by Messrs. Fagge and Howse[1] in which death had occurred within two days from the commencement of the disease, and in which, at the autopsy, it was found impossible to replace the whole of the invaginated bowel; and in the table a number of cases will be found, in which, at operations performed from three to five days from the beginning of the disease, reduction was ascertained to be either difficult or impossible. My own case is the only one that I know of wherein, in an intussusception primarily acute, an operation has been performed at a period earlier than three days from the first appearance of symptoms. In this, just eighteen hours had elapsed, and I should infer, from the behaviour of the invagination when it was under examination, that the delay of a few hours more might have rendered reduction impossible.

3. There remain a considerable number of cases that cannot be included in either of the preceding categories, but in which an operation might possibly be indicated. Besides the well-marked acute and chronic forms of the disease, others are sometimes met with, varying considerably in severity, according to the danger of strangulation present, and in which the irregular succession and alternation of symptoms makes the interpretation of the latter more or less difficult and uncertain. The surgeon fears that whatever course of treatment he may adopt will prove a failure; but although in such cases active interference must always be hazardous, it will be plainly his duty to estimate, as accurately as he can, the pathological condition of the imprisoned intestine, and to resort to abdominal section, even at a comparatively late period, provided the patient's strength is not too much reduced, and there appears to be no probability of a spontaneous separation of the affected part. But further data must be procured before a definite rule can be framed respecting this class of cases; and I think it extremely doubtful whether enough success will ever be obtained to warrant the frequent employment of the knife.

Dr. Sands tabulates the records of twenty-one cases of laparotomy for intussusception, eight of which have occurred since Dr. Ashhurst published in the number of this Journal for July, 1874, p. 48, his elaborate statistical paper on this subject.

Of twenty cases in which the result of the operation is given, seven recovered and thirteen proved fatal, thus showing a mortality of sixty-five per cent. So far, the figures appear to justify the operation, as the mortality is less than that of all cases taken together, which, according to Leichtenstern, is seventy-three per cent. But this rough comparison of figures, if not a misapplication of statistics, is really of little value; and a much more discriminating analysis must be instituted before we can make any useful application of the facts to individual cases.

---

[1] Medico-Chirurgical Transactions, vol. lix. p. 94.

Out of twenty cases, the mortality of the operation in the different forms of intussusception is shown as follows: Intussusception involving the small intestine, 1 recovered; 0 died. Involving the large intestine, 4 recovered; 10 died. Seat not mentioned, 2 recovered, and 3 died.

The rarity of operations for the relief of intussusception of the small intestine is doubtless due to the relative infrequency of the disease, the tendency to recover by sloughing, and the difficulty of making an exact diagnosis.

The apparent influence of age upon the success of the operation is shown by the following: Of 12 cases of two years old or under, 3 recovered and 9 died. Of 7 cases sixteen years old or over, 4 recovered and 3 died. The operation in infants is thus placed in a very unfavourable light, the mortality being no less than 75 per cent., while in adults it is 43 per cent. But Dr. Sands exposes the fallacy of these figures by comparing the cases with reference to the state of the invaginated parts, and, as an indication of their condition, he classifies them into: first, those in which reduction was easy; and, second, those in which it was difficult or impossible. The nineteen cases available for this comparison show a mortality of 14 per cent. in 7 cases in which reduction was easy, and of 91 per cent. in 12 cases in which it was difficult or impossible.

From the study of these figures Dr. Sands concludes that the mortality of abdominal section is probably determined much more by the condition of the intestine than by the age of the patient. For he finds—taking all cases together—the mortality of the operation to be 14.per cent. in the easy, and 91 per cent. in the difficult cases; while in infants we obtain a mortality in easy cases of 25 per cent., and in difficult ones of 100 per cent. This would encourage us to hope that in infancy the operation may not prove to be contraindicated, and that even if the success attending its performance falls somewhat below that obtained among adults, it may yet be quite enough to justify the surgeon in having recourse to it under certain circumstances. Furthermore, we must remember that in infancy the chances of spontaneous recovery are almost nothing, and that, consequently, when the usual methods of replacement have been fairly tried and proved unavailing, the child must either be abandoned to its fate, or submit to the risks of an operation. Nevertheless, Dr. Sands is far from advocating its performance in every case in which other means have failed, and he believes that much discrimination will be necessary to prevent the operation from being brought into disrepute.

Whenever the patient is not seen until late in the disease, the question will, of course, arise whether reduction should be attempted by *any* mechanical means, or whether, on the whole, it will not be safer to abstain from all active interference, and trust to the chances of spontaneous cure by sloughing. When firm adhesions have formed, or gangrene is in progress, an attempt to effect reduction by distending the intestine would be likely to precipitate a fatal result by causing rupture. As to the plan of operating at all hazards, and cutting away, if necessary, the intussuscepted parts, Dr. Sands thinks it must be looked upon as a desperate expedient, which has obtained no sanction from past experience.

The following are the conclusions which Dr. Sands has reached:—

1. The success which has already been obtained in the operation of abdominal section for intussusception is sufficient to justify its repetition, when other means have proved unavailing.

2. There is reason to believe that in intussusception, as in strangulated hernia, the great danger lies in delay, and that, in acute cases, the operation, to be successful, must be performed at a very early period, probably within twenty-four hours from the invasion of the disease.

3. In chronic cases, the operation is indicated when other means have failed, and there is reason to think that the invagination is still reducible.

4. It has been proved, by the case herewith related, that the operation may succeed in acute cases, if performed during the first eighteen hours.

5. The greater fatality of the operation in infants has been shown to be rather apparent than real, and it remains to be proved whether, in them, the performance of abdominal section for intussusception may not yield gratifying results.

6. In infancy the operation is the more justifiable, because during that period there is hardly any tendency toward spontaneous recovery after sloughing of the intestine.

Excision of Rectum for Cancer.

Dr. BRIDDON reports (*Med. Record*, Jan. 6, 1877) the following case, in which this operation was successfully performed:—

Eliza W., aged forty-five, mulatto, had a slightly prominent, somewhat nodular growth surrounding the gut, and extending above the internal sphincter, about two and a half inches. The rectum was freely movable, showing that the surrounding connective tissue was uninvolved.

The operation was performed November 20th, 1876. With the object of preserving the external sphincter, the anal perineum was split up by an incision, reaching from immediately behind the fourchette to the point of the coccyx; the anterior and posterior divisions of this incision were united by carrying the knife along the mucous membrane about one-quarter inch above anal aperture; loops were then passed through the skin-flaps on either side and through the end of the gut; the insertions of the levator were divided by the knife, which was then laid aside, and the deeper connections were severed by the fingers, aided by the handle of the scalpel and the blunt-pointed scissors. This separation was tedious and difficult; it was easy to separate the wall of the vagina from that of the rectum as high as the point where the peritoneum is reflected from one to the other; but the posterior connections high up in the concavity of the sacrum were unyielding, and it was only after considerable traction that the sound intestine at that point could be brought down level with the perineum; as soon as this was accomplished, the gut was partially divided in front and attached by suture to the surrounding skin; the further division was made little at a time, securing bleeding vessels and the gut to the adjacent skin, until the whole was fixed in position by nearly a dozen sutures.

The free surface of the growth was somewhat nodular, grayish-pink in colour, with points of ulceration, and slight hemorrhages here and there. Upon section the morbid process was found to involve chiefly the mucous membrane, which was much thickened and of purplish colour. The muscular coat was considerably hypertrophied, particularly posteriorly; the connective tissue surrounding the rectum was perfectly normal in appearance. In it was found the enlarged lymphatic gland previously felt upon rectal examination. This gland was the size of a large pea, and yellowish-white in colour, and upon section was found to be in a state of cheesy degeneration. A microscopic examination revealed a predominance of cylindrical epithelium, with a marked tendency to the formation of tubuli. The connective tissue was considerably infiltrated with small round cells. The lymphatic gland contained chiefly fatty detritus and tablet of cholesterine.

Another case which recently occurred in the practice of Dr. R. J. LEVIS, Surgeon to the Pennsylvania Hospital, is reported by Dr. J. B. Roberts (*Archives of Clin. Surgery*, Feb. 1877).

The patient was a man sixty years of age, who had symptoms of rectal trouble for about one year. Digital examination showed that there was a nodulated mass occupying the anterior part of the rectal wall, and extending about two and a half inches up the bowel. The operation was done as follows: After a large bougie had been introduced into the bladder to serve as a guide to the position of, and also to steady the urethra, an incision was made from the base of the scrotum to the coccyx, encircling both sides of the anal aperture. The hand of the operator was then introduced behind the rectum into the hollow of the sacrum, by which means the bowel was torn loose from its posterior attachments. After this was done, Dr. Levis, by means of his finger and the serrated scissors, broke down the attachment of the viscus around to the front. The cancerous portion was then carefully dissected from the prostate gland and lower part of the bladder. The vessels were ligated as soon as divided, and double sutures passed through the skin into the rectum above the proposed line of excision. These were not fastened, but left in position in order to give perfect control of the parts. When the diseased portion had been thoroughly isolated, the gut was drawn forcibly downward by seizing the tumour, and the scissors used to cut through the walls of the bowel. About two and a half inches were thus excised, leaving behind a perfectly soft and smooth mucous surface. The sutures were then shotted, and a few extra ones applied to keep the gut in position, which was, by this means, securely stitched to the surrounding integument.

From a subsequent report of the case, which is accompanied by an excellent historical *résumé* of this operation by Dr. Roberts (*Med. and Surg. Rep.*, June 9, 1877), we learn that the wound suppurated freely, without any burrowing of pus, and there was slight tympanites for a few days, but the patient had not sufficient pain to require more than an occasional opiate at night. On the seventh day his bowels were freely opened for the first time by castor oil, and by the tenth day all the sutures were removed. These, by the way, in many instances had pulled loose long before, so that it is doubted whether much is gained by attaching the gut to the integument, which, at least, has the disadvantage of favouring the retention of pus in the ischio-rectal space. Fifteen days after the operation the patient was allowed to sit up, and his convalescence was secure.

In the latter part of May Dr. Levis operated on a second case (*Ibid.*). The patient was aged fifty-two, had a carcinomatous tumour, the size of a small hen egg, situated at the right side of the bowel, which had existed about three months. An incision was first made along the right side of the anus, and the finger introduced to tear up the attachments all around the lower end of the rectum. The incision was then extended around the anus in such a manner as to encircle it, and the operation completed in very much the same manner as in the first case. The section of the tube removed was about one and a half inches. The patient became jaundiced, and died on the fourth day. The autopsy showed a slight pneumonic patch in the right lung, considerable lymph and pus in the pelvic cavity, and general peritonitis. The jaundice appeared to be the result of pressure from a few enlarged glands, probably not cancerous, near the common duct. There was no wound found in the peritoneum, the lowest point of which was three-quarters or one inch above the end of the excised bowel.

In April last Dr. D. HAYES AGNEW (*Phila. Med. Times*, June 23, 1877) operated at the Hospital of the University of Pennsylvania on a female who had an epithelioma occupying the lower two and a half inches of the rectum. The patient died on the seventh day.

The Prophylactic Treatment of Placenta Prævia.

Dr. T. Gaillard Thomas earnestly advocates (*Am. Practitioner*, May, 1877) the induction of premature delivery in cases of placenta prævia. He says: There is but one method at present at the disposal of the obstetrician by which the evils attendant upon the three last months of utero-gestation, and upon labour thus complicated can be avoided. It is the induction of premature delivery after the period of viability of the child. By this procedure, a rational, and it appears to me a perfectly warrantable, means of avoidance of a great danger is offered to us; one which presents in itself no dangers comparable with those of non-interference, and one which, while it removes the absolute hazards attendant upon delay, relieves that wearing anxiety which harasses patient, friends, and physician.

Fortunately this condition is usually announced during the last months of utero-gestation by premonitory signs of reliable character, and thus we may empty the uterus before the vital forces of both mother and child are exhausted by hemorrhages, the results of repeated detachments of the placenta. My conviction is that, in every case of undoubted placenta prævia, in which the flow of blood threatens, by its amount or frequent recurrence, the loss of mother and child, premature delivery should be induced. What objection can be urged against it, other than that a child of less than nine months of intra-uterine life does not have as good a prospect of life as one which has arrived at full term? In the case which we are considering, even this is invalidated by the fact that an eight-months' child out of the uterus, and depending upon pulmonary respiration, has a decidedly brighter prospect for life than one in that cavity depending for aëration of its blood upon a crippled and bleeding placenta. For the mother, how incomparably greater the safety which attends an emptied and contracted uterus! By inducing delivery during the ninth month of pregnancy, we should be dealing with a woman who is not exhausted by repeated hemorrhages; we would be in attendance at the moment of cervical dilatation, and, consequently, the moment of danger; and we would be able by hydrostatic pressure to control hemorrhage in great degree, while at the same time the period of dilatation of the cervix, which constitutes the time of maximum danger, may be rapidly accomplished. Under these circumstances, in the words of Angus McDonald, "nothing can be gained by delay, if we are satisfied that the bleeding is really serious, and if continued would lead to great risk to the mother's life and health."

With these considerations before me, and with a certain amount of experience to support them, I cannot resist the conviction that, when premature delivery becomes the recognized and universal practice for placenta prævia, the statistics of the present day will be replaced by others of a far more satisfactory kind.

Upon those practitioners who have used with satisfaction the tampon until version has become practicable, and who, in reliance upon these excellent and efficient means, set their faces against the innovation here advocated, I would urge a thoughtful consideration of the statistics of placenta prævia. Accepting those offered us by Simpson, Read, and Trask, approximatively, the prognosis for the mother is about as grave as that of the patients submitted to the capital operation of ovariotomy. For the child it is much graver. We must, therefore, either regard the statistics to which I have made allusion as utterly worthless and unreliable, for which conclusion no warrant whatever exists; or we must admit that the claims of any means which offers immunity, to any decided degree, from the ordeal of so dangerous a parturition and labour, should be most carefully weighed before being thrown aside.

UNIVERSITY OF PENNSYLVANIA.

MEDICAL DEPARTMENT.

Thirty-Sixth Street and Woodland Avenue (Darby Road), Philadelphia.

One Hundred and Twelfth Annual Session, 1877-78.

PROFESSORS.

CHARLES J. STILLÉ, LL.D., Provost.

GEORGE B. WOOD, M.D., LL.D., Emeritus Professor of Theory and Practice of Medicine.

HENRY H. SMITH, M.D., Emeritus Professor of Surgery.

FRANCIS G. SMITH, M.D., Emeritus Professor of the Institutes of Medicine.

JOSEPH LEIDY, M.D., LL.D., Professor of Anatomy.

RICHARD A. F. PENROSE, M.D., LL.D., Professor of Obstetrics and Diseases of Women and Children.

ALFRED STILLÉ, M.D., LL.D., Professor of Theory and Practice of Medicine, and Clinical Medicine.

D. HAYES AGNEW, M.D., LL.D., Professor of Surgery and Clinical Surgery.

HORATIO C. WOOD, M.D., Professor of Materia Medica and Pharmacy.

WILLIAM PEPPER, M.D., Professor of Clinical Medicine.

WILLIAM GOODELL, M.D., Professor of Clinical Gynæcology.

JAMES TYSON, M.D., Professor of General Pathology and Morbid Anatomy.

THEO. G. WORMLEY, M.D., LL.D., Professor of Chemistry.

JOHN ASHHURST, Jr., M.D., Professor of Clinical Surgery.

——— ———, Professor of Physiology.*

WILLIAM F. NORRIS, M.D., Clinical Professor of Diseases of the Eye.

GEORGE STRAWBRIDGE, M.D., Clinical Professor of Diseases of the Ear.

HORATIO C. WOOD, M.D., Clinical Professor of Nervous Diseases.

LOUIS A. DUHRING, M.D., Clinical Professor of Diseases of the Skin.

* The course on Physiology during the coming session will be delivered by Prof. Tyson.

New matriculates are required to attend three winter courses of instruction of five months each, consisting of graded didactic lectures, clinical lectures, and practical work in laboratories and hospitals.

CURRICULUM.

First Year.—Anatomy, Histology, Materia Medica and Pharmacy, General Chemistry, Physiology, General Pathology and Morbid Anatomy;—*Final examinations* in General Chemistry, and Materia Medica and Pharmacy.

Second Year.—Anatomy, Topographical Anatomy, Medical Chemistry, Physiology, General Pathology and Morbid Anatomy, Therapeutics, Obstetrics, Theory and Practice of Medicine, Surgery, Clinical Medicine and Clinical Surgery;—*Final examinations* in Anatomy, Medical Chemistry, Physiology, General Pathology and Morbid Anatomy.

Third Year.—Topographical Anatomy, Theory and Practice of Medicine, Surgery, Obstetrics, Therapeutics, Operative Surgery, Minor Surgery and Bandaging, Diseases of Women and Children, Didactic Gynæcology; *Bedside instruction* in Practical Medicine and Surgery; Practical Ophthalmology, Otology, Dermatology and Electro-Therapeutics; Clinical Medicine and Surgery, and Special Clinics (Nervous Diseases, Diseases of Skin, Eye, Ear, and of Women and Children):—*Final examinations* in Therapeutics, Theory and Practice of Medicine, Surgery, and Obstetrics.

In carrying out the above plan advantage will be taken of the newly-furnished laboratories of the University, and of the great clinical facilities afforded by the University, Philadelphia, and Pennsylvania Hospitals.

Students, who have attended one course in a regular† medical school, will be admitted as students of the second course in the University, after having satisfactorily passed an examination in General Chemistry and Materia Medica and Pharmacy. Students who have attended two courses in a regular medical school, will be admitted as students of the third course after examination in General and Medical Chemistry, Materia Medica and Pharmacy, Anatomy, and Physiology.

Graduates of other regular medical schools in good standing will be admitted as students of the third course in this institution without any examination.

In the Spring months, a valuable course on numerous practical and scientific subjects by a large corps of professors and lecturers is given; and the laboratories of Chemistry, Pharmacy, Histology, Physiology, and Pathology are open throughout these months, affording a valuable post-graduate course.

The Lectures of the Winter Session of 1877-78 *will begin on the first Monday* (1*st*) *of October, and end on the last day of February.*

The Preliminary Course will begin on Monday, Sept. 10*th.*

Fees, in advance.—1st course of lectures, including matriculation and dissection, $155. Dissecting material free. 2d course $140. 3d course $100. Graduation fee, $30.

For Announcement giving full particulars address

JAMES TYSON, M.D., Secretary,
P. O Box 2838 *Philadelphia.*

JEFFERSON MEDICAL COLLEGE—PHILADELPHIA.

The Fifty-third Session of the Jefferson Medical College will begin on Monday, October 1, 1877, and will continue until 1st of March, 1878. Preliminary Lectures will be held from Monday, 3d September.

PROFESSORS.

Joseph Pancoast, M.D., General, Descriptive, and Surgical Anatomy (*Emeritus*).
Samuel D. Gross, M.D., LL.D., D.C.L. Oxon., Institutes and Practice of Surgery.
Ellerslie Wallace, M.D., Obstetrics and Diseases of Women and Children.
John B. Biddle, M.D., Materia Medica and General Therapeutics.
J. Aitken Meigs, M.D., Institutes of Medicine and Medical Jurisprudence.
J. M. Da Costa, M.D., Practice of Medicine.
William H. Pancoast, M.D., General, Descriptive, and Surgical Anatomy.
Robert E. Rogers, M.D, Medical Chemistry and Toxicology.

Continuous instruction is given throughout the year (with the exception of the months of July and August), which is free to the matriculates of the Winter Session. The following special subjects are taught during the Preliminary Course in September:—

Medical Jurisprudence, by Professor Meigs.

Dermatology and Syphilitic Diseases, by Dr. F. F. Maury, one of the Surgeons to the Philadelphia Hospital.

Pathological Anatomy, by Dr. Longstreth, Pathologist to the Pennsylvania Hospital.

Operative Surgery, with Operations on the Cadaver, by Dr. John H. Brinton, one of the Surgeons to the Philadelphia Hospital.

Diseases of the Urino-Genital Organs, by Dr. S. W. Gross, one of the Surgeons to the Philadelphia Hospital.

Ophthalmology is treated both clinically and didactically during the entire course, by Dr. William Thomson, one of the Surgeons to the Wills Ophthalmic Hospital.

Laryngoscopy, with Diseases of the Throat, by Dr. J. Solis-Cohen.

The Demonstrator of Surgery, Dr. J. Ewing Meigs, delivers a distinct course of Demonstrations of Surgery, with illustrations on the Cadaver, during the entire session.

Practical Chemistry with Qualitative and Quantitative Analysis, the Examination of Normal and Abnormal Products, and Manipulation by the student himself, is taught by the Professor of Chemistry, assisted by the Demonstrator, G. M Ward, M.D.

Demonstrative Physiology is taught in the Laboratory by the Professor of Physiology, assisted by the Demonstrator.

Practical Anatomy and Morbid Anatomy. For the study of Practical Anatomy a full supply of material is furnished free of charge. The anatomical rooms are spacious and provided with every convenience, and not only are subjects for dissection to be had without expense, but there are no incidental or extra charges of any kind. Demonstrator of Anatomy, T. H. Andrews, M.D. The dissecting ticket (fee $10) is good for one year from the date of issue.

The New Hospital of the Jefferson Medical College, which was begun in November, 1875, is now completed and in operation. It is situated immediately west of the College, fronting on Sansom Street, and is bounded on three sides by streets, and by a wide private passage-way on the fourth side. It is 107 feet square, five stories in height, and is designed for the easy accommodation of 125 patients. In connection with the hospital is the out-door or dispensary department, which furnishes much valuable material for clinical instruction. The amphitheatre, provided for Clinical Lectures, is probably the largest and most convenient in the United States, and will seat more than six hundred students. The most approved appliances for heating, ventilation, etc., have been provided, and, in architectural construction and all desirable conveniences, this hospital will be found at least equal to any American clinical hospital. Daily Clinical Lectures are given at the hospital through the entire year by members of the Faculty and by the hospital staff, which is constituted as follows:—

Surgeons:	*Physicians:*
JOHN H. BRINTON, M.D.,	J SOLIS-COHEN, M.D.,
F F. MAURY, M D,	JAMES C. WILSON, M.D.,
S W. GROSS, M D.,	JOHN B ROBERTS, M.D.,
R J. LEVIS, M.D.	OLIVER P. REX, M.D.
Ophthalmic Surgeon:	*Gynæcologists:*
WILLIAM THOMSON, M D.	F. H GETCHELL, M D.,
	J EWING MEARS, M.D.
Aural Surgeon:	*Pathologist:*
L TURNBULL, M D.	MORRIS LONGSTRETH, M.D

A Summer Course of Supplementary Lectures is given, beginning 18th March, 1878, and extended through the months of April, May, and June. There is no additional charge for this Course to matriculates of the College, except a registration fee of five dollars; non-matriculates pay thirty-five dollars which is, however, credited on the amount of fees paid for the ensuing winter course.

FEES.

For a Full Course	$140
Matriculation Fee (paid once only)	5
Graduation Fee	30

Students, who have attended two full courses on Materia Medica, Institutes, Anatomy, or Chemistry, may be examined on any of these branches at the end of their second course.

The Annual Announcement will be sent on application to

HARVARD UNIVERSITY.

MEDICAL DEPARTMENT—Boston, Mass.

NINETY-FOURTH ANNUAL ANNOUNCEMENT. (1877-78.)

FACULTY OF MEDICINE.

Charles W. Eliot, LL D., President
Calvin Ellis, M D., Prof of Clinical Medicine, Dean.
John B. S Jackson, M D, Prof of Pathol Anat
Oliver W. Holmes, M D., Prof. of Anatomy
Henry J Bigelow, M D., Professor of Surgery
John E. Tyler, M D, Prof of Mental Diseases.
John P Reynolds, M D., Prof. of Obstetrics
Francis Minot, M D., Hersey Professor of the Theory and Practice of Medicine.
Henry W Williams, M.D., Professor of Ophthalmology.
David W. Cheever, M.D, Professor of Clinical Surgery
James C White, M D, Prof. of Dermatology.
Robert T. Edes, M D., Professor of Materia Medica.
Henry P. Bowditch, M.D., Prof. of Physiology.
Charles B Porter, M.D, Demonstrator of Anatomy, and Instructor in Surgery
Frederick I. Knight, M D, Instructor in Percussion, Auscultation, and Laryngoscopy.
J Collins Warren, M.D., Instructor in Surgery.
Reginald H Fitz, M.D., Assistant Professor of Pathological Anatomy.
Wm L Richardson, M.D., Instructor in Obstetrics
Thomas Dwight, M D, Instructor in Histology.
Edward S. Wood, M.D., Prof. of Chemistry
Henry H A Beach, M.D., Assistant Demonstrator of Anatomy.
William H. Baker, M.D, Instructor in Gynæcology.
William B. Hills, M.D, Instructor in Chemistry.

OTHER INSTRUCTORS.

George H F. Markoe, Instructor in Materia Medica.
Frank W. Draper, M.D., Lecturer on Hygiene.

THE FOLLOWING GENTLEMEN WILL GIVE SPECIAL CLINICAL INSTRUCTION.

Francis B. Greenough, M.D., and Edward Wigglesworth, M.D, in Syphilis.
John O Green, M D., and Clarence J Blake, M D., in Otology.
Charles P. Putnam, M D, and Joseph P. Oliver, M.D., in Diseases of Children.
Samuel G. Webber, M.D., and James J. Putnam, M.D, in Diseases of the Nervous System.

Persons who hold no degree in arts or science must hereafter pass an *examination for admission* to this School, in Latin, in the elements of Physics, and in English. French or German will be accepted instead of Latin. The admission examination will be held June 28, both at Boston and at Cincinnati; on September 27, at Boston only.

Instruction is given by lectures, recitations, clinical teaching, and practical exercises, distributed throughout the academic year. The year begins September 27, 1877, and ends on the last Wednesday in June, 1878. It is divided into two equal terms, either of which is more than equivalent to the former "Winter Session," as regards the amount and character of the instruction. The course of instruction has been greatly enlarged, so as to extend over three years, and has been so arranged as to carry the student progressively and systematically from one subject to another in a just and natural order. In the subjects of anatomy, histology, chemistry, and pathological anatomy, laboratory work is largely substituted for, or added to, the usual methods of instruction.

Instead of the customary oral examination for the degree of Doctor of Medicine, held at the end of the three years' period of study, a series of written examinations on all the main subjects of medical instruction has been distributed through the whole three years; and every candidate for the degree must pass a satisfactory examination in every one of the principal departments of medical instruction during his period of study.

DIVISION OF STUDIES.

For the First Year—Anatomy, Physiology, and General Chemistry.

For the Second Year—Medical Chemistry, Materia Medica, Pathological Anatomy, Clinical Medicine, Surgery, and Clinical Surgery.

For the Third Year—Therapeutics, Obstetrics, Theory and Practice of Medicine, Clinical Medicine, Surgery, and Clinical Surgery.

Students are divided into three classes, according to their time of study and proficiency. Students who began their professional studies elsewhere may be admitted to advanced standing; but all persons who apply for admission to the second or third year's class must pass an examination in the branches already pursued by the class to which they seek admission. Examinations are held in the following order:—

At the end of the first year—Anatomy, Physiology, and General Chemistry.
End of second year—Medical Chemistry, Materia Medica, and Pathological Anatomy.
End of third year—Therapeutics, Obstetrics, Theory and Practice of Medicine, Clinical Medicine, Surgery, and Clinical Surgery.

Examinations are also held before the opening of the School, beginning September 24th.

Requirements for a Degree.—Every candidate must be twenty-one years of age; must have studied medicine three full years, have spent at least one continuous year at this school, have passed the required examinations, and have presented a thesis.

Course for Graduates.—For the purpose of affording to those already Graduates of Medicine additional facilities for pursuing clinical, laboratory, and other studies, in such subjects as may specially interest them, the Faculty has established a course which comprises the following branches: Histology; Physiology; Medical Chemistry; Pathological Anatomy; Surgery; Auscultation, Percussion, and Laryngoscopy; Ophthalmology; Dermatology; Syphilis; Psychological Medicine; Otology; Electro-therapeutics; Gynæcology; and Obstetrics.

Single branches may be pursued, and on payment of the full fee also the privilege of attending any of the other exercises of the Medical School, the use of the laboratories and library, and all other rights accorded by the University will be granted. Graduates of other Medical Schools who may desire to obtain the degree of M D. at this University, will be admitted to examination for this degree after a year's study in the Graduates' Course. Examination on entrance not required.

Fees.—For Matriculation, $5; for the Year, $200; for one Term alone, $120; for Graduation, $30. For Graduates' Course, the fee for one year is $200; for one Term, $120; and for single courses such fees as are specified in the Catalogue. Payment in advance.

Members of any one department of Harvard University have a right to attend lectures and recitations in any other department without paying additional fees.

For further information, or Catalogue, address

COLLEGE OF MEDICINE OF SYRACUSE UNIVERSITY—SYRACUSE, N. Y.

FACULTY.

John Towler, M.D., Professor of Chemistry and Toxicology.
Frederick Hyde, M.D., Professor of Principles and Practice of Surgery.
Henry D. Didama, M.D., Professor of Principles and Practice of Medicine and Clinical Medicine.
Nelson Nivison, M.D , Professor of Physiology, Pathology, and Hygiene.
John Van Duyn, M.D., Professor of General, Special, and Surgical Anatomy.
Charles E. Rider. M.D., Professor of Ophthalmology and Diseases of the Ear.
Harvey B. Wilbur, M D., Lecturer on Insanity.
Wilford W. Porter, M.D., Professor of Obstetrics and Diseases of Women.
William T. Plant, M.D., Professor of Clinical and Forensic Medicine and Children's Diseases.
Roger W. Pease, M.D., Professor of Operative and Clinical Surgery.
Alfred Mercer, M.D., Professor of Minor and Clinical Surgery.
J Otis Burt, M.D . Professor of Materia Medica.
Miles G. Hyde, M.D., Adjunct Professor of Anatomy.
Wm. Manlius Smith, M.D., Professor of Medical Chemistry and Botany.

J. W. Knapp, M.D., Demonstrator of Anatomy.
David M. Totman, M.D., Instructor in Physiology.
Brace W. Loomis, M.D , Instructor in Histology.
J. G. Justin, M.D., Instructor in Chemistry.
G. R Metcalf, M.D., Instructor in Materia Medica.

The curriculum in this school has been arranged with special reference to the increasing demand for a more thorough and systematic culture than is usually given in American medical colleges.

Experience having shown it to be impossible to present the essentials of medicine in a series of lectures extending over sixteen to twenty weeks, the college year has been lengthened and a system of gradation in studies adopted.

The next academic year will begin on the first Thursday in October, and end on the 13th of June. It is divided into two terms nearly equal in length, with a vacation of two weeks between them.

The studies are divided into those of the first, the second, and the third years.

1st year studies : Anatomy, Physiology, General Chemistry, Histology, and Botany.
2d year studies : Continuation of Anatomy and Physiology, Medical Chemistry, Materia Medica, Practice, Surgery, and Clinical Medicine and Surgery.
3d year studies : Materia Medica, Practice, Surgery, and Clinical Medicine and Surgery continued, with Obstetrics, Forensic Medicine, Gynæcology and Ophthalmology.

Instruction is given by lectures and recitations with frequent and various practical exercises.

All students of the first year receive in the chemical laboratory a thorough course in Analytical Chemistry. They are also taught the use of the microscope and practical Histology and Botany.

All necessary clinical advantages are afforded to students of the 2d and 3d years by two good hospitals and the college dispensary.

This school makes no distinction as to sex. Women and men receive precisely the same instruction. This plan of co-education has been pursued since the organization of the school in 1872 with results that fully warrant its continuance.

Examinations are frequent and thorough. For regular students, a preliminary on entering to ascertain qualifications for the study of medicine : also at the end of each year to determine fitness for advancement or for graduation. The examinations in Anatomy, Chemistry, and Physiology at the end of the second year are final.

Students at home or in an office who may wish to join our second year, will prepare for examination on the bones and muscles in Anatomy, on Nutrition in Dalton's Physiology, and on Elliott and Storer's abridged Chemistry.

Students who do not intend to become candidates for the degree may be received at any time without examination and make their own choice of studies.

Requirements for the degree. Twenty-one years ; good character, three full years of medical study, one continuous year at this school, and successful examinations. No thesis required.

FEES

Matriculation	$5 00	Graduation	$25 00
Tuition for the year	100 00	Demonstrator	5 00
For single term	65 00	Laboratory students per term	5 00
For full course 3 years	250 00		

To students not in regular course $18 00 per term for a single study.

For annual circular or other information address the Registrar,

WM T. PLANT, M D., Syracuse, New York.

MEDICAL DEPARTMENT OF THE UNIVERSITY OF LOUISIANA—NEW ORLEANS.

FACULTY.

A. H. Cenas, M.D., Emeritus Professor of Obstetrics and Diseases of Women and Children.

T. G. Richardson, M.D., Professor of General and Clinical Surgery.

Samuel M. Bemiss, M.D., Professor of the Theory and Practice of Medicine and Clinical Medicine.

Stanford E. Chaillé, M.D., Professor of Physiology and Pathological Anatomy.

Joseph Jones, M.D., Professor of Chemistry and Clinical Medicine.

Samuel Logan, M.D., Professor of Anatomy and Clinical Surgery.

Ernest S. Lewis, M.D., Professor of General and Clinical Obstetrics and Diseases of Women and Children.

John B. Elliott, M.D., Professor of Materia Medica and Therapeutics and Clinical Medicine.

Albert B. Miles, Demonstrator of Anatomy.

The next annual course of instruction in this Department (now in the forty-fourth year of its existence) will commence on Monday, the 12th day of November, 1877, and terminate on Saturday, the 9th day of March, 1878. Preliminary Lectures on Clinical Medicine and Surgery will be delivered in the amphitheatre of the Charity Hospital, beginning on the 20th of October, without any charge to students.

The means of teaching now at the command of the Faculty are unsurpassed in the United States. Special attention is called to the opportunities presented for

CLINICAL INSTRUCTION.

The Act establishing the University of Louisiana gives the Professors of the Medical Department the use of the great Charity Hospital as a school of practical instruction.

The Charity Hospital contains nearly 700 beds, and received, during the last year, nearly *six thousand* patients. Its advantages for professional study are unsurpassed by any similar institution in this country. The Medical, Surgical, and Obstetric Wards are visited by the respective professors in charge daily, from eight to ten o'clock A. M., at which time all the students are expected to attend and familiarize themselves, *at the bedside of the patients*, with the diagnosis and treatment of all forms of injury and disease.

The regular lectures at the hospital, on Clinical Medicine by Professors Bemiss, Elliott, and Joseph Jones, Surgery by Professors Richardson and Logan, Diseases of Women and Children by Professor Lewis, and Special Pathological Anatomy by Professor Chaillé, will be delivered in the amphitheatre on Monday, Wednesday, Thursday, and Saturday, from 10 to 12 o'clock A. M.

The administrators of the hospital elect annually twelve resident students, who are maintained by the institution. All vacancies filled by competitive examinations.

TERMS.

For the Tickets of all the Professors	$140 00
For the Ticket of Practical Anatomy	10 00
Matriculation Fee	5 00
Graduation Fee	30 00

Graduates of other recognized schools may attend all the lectures upon payment of the matriculation fee; but they will not be admitted as candidates for the Diploma of the University except upon the terms required of second course students. All fees are payable in advance.

As the practical advantages here afforded for a thorough acquaintance with all the branches of medicine and surgery are *quite equal* to those possessed by the schools of New York and Philadelphia, the same fees are charged.

For further information, address T. G. RICHARDSON, M.D., *Dean.*

UNIVERSITY OF THE CITY OF NEW YORK.

MEDICAL DEPARTMENT.

410 *East Twenty-Sixth St., opposite Bellevue Hospital, New York City.*

THIRTY-SEVENTH SESSION—1877–78.

FACULTY OF MEDICINE.

REV. HOWARD CROSBY, D.D., LL.D., Chancellor of the University.
ALFRED C. POST, M.D., LL.D., Professor Emeritus of Clinical Surgery; President of the Faculty.
CHARLES INSLEE PARDEE, M.D., Professor of Diseases of the Ear; Dean of the Faculty.
MARTYN PAYNE, M.D., LL.D., Professor Emeritus of Materia Medica and Therapeutics.
JOHN C. DRAPER, M.D., LL D., Professor of Chemistry.
ALFRED L. LOOMIS, M.D., Professor of Pathology and Practice of Medicine.
WILLIAM DARLING, A.M., M.D., F.R.C.S., Professor of Anatomy.
WILLIAM H. THOMSON, M.D., Professor of Materia Medica and Therapeutics.
J. W. S. ARNOLD, M.D., Professor of Physiology and Histology.
JOHN T. DARBY, M.D., Professor of Surgery.
J. WILLISTON WRIGHT, M D., Professor of Obstetrics and Diseases of Women and Children.
FANEUIL D. WEISSE, M.D , Professor of Practical and Surgical Anatomy.
R. A. WITTHAUS, JR., M.D., Associate Professor of Chemistry and Physiology.
JOSEPH W. WINTER, M.D., Demonstrator of Anatomy.

POST-GRADUATE FACULTY.

D. B. ST. JOHN ROOSA, M.D., Professor of Ophthalmology.
WM. A. HAMMOND, M.D., Professor of Diseases of the Mind and Nervous System.
STEPHEN SMITH, M.D., Professor of Orthopœdic Surgery.
J. W. S. GOULEY, M.D., Professor of Diseases of the Genito-Urinary System.
MONTROSE A. PALLEN, M.D., Professor of Gynæcology.
HENRY G. PIFFARD, M.D., Professor of Dermatology.
A. E. MACDONALD, M.D., Professor of Medical Jurisprudence.
JOSEPH W. HOWE, M.D., Clinical Professor of Surgery.

THE COLLEGIATE YEAR is divided into three Sessions: a Preliminary Session, a Regular Winter Session, and a Spring Session.

THE PRELIMINARY SESSION will commence September 19, 1877, and will continue until the opening of the Regular Winter Session. It will be conducted on the plan of that Session.

THE REGULAR WINTER SESSION will commence on the 3d of October, 1877, and end about the 1st of March, 1878.

The location of the new College edifice being immediately opposite the gate of Bellevue Hospital, and a few steps from the ferry to Charity Hospital, Blackwell's Island, the Students of the University Medical College are enabled to enjoy the advantages afforded by these Hospitals, with the least possible loss of time. The Professors of the practical Chairs are connected with the Hospitals, and the University Students are admitted to *all the Clinics* given therein *free of charge*.

In addition to the daily Hospital Clinics, there are eight Clinics each week in the College Building Five Didactic Lectures will be given daily in the College building, and Evening Recitations will be conducted by the Professors of Chemistry, Practice, Anatomy, Materia Medica, etc., Physiology, Surgery, and Obstetrics, upon the subjects of their Lectures.

THE SPRING SESSION embraces a period of twelve weeks, beginning in the first week of March and ending the last week of May. The daily Clinics, Recitations, and Special Practical Courses will be the same as in the Winter Session, and there will be Lectures on Special Subjects by the Members of the Post-Graduate Faculty.

THE DISSECTING ROOM is open throughout the entire Collegiate year; material is abundant, and it is furnished free of charge.

STUDENTS WHO HAVE STUDIED TWO YEARS may be admitted to examination in Chemistry, Anatomy, and Physiology, and, if successful, will be examined at the expiration of their full course of study on Practice, Materia Medica and Therapeutics, Surgery, and Obstetrics; but those who prefer it may have all their examinations at the close of their full term.

FEES.

For Course of Lectures	$140 00
Matriculation	5 00
Demonstrator's fee, including material for dissection	10 00
Graduation fee	30 00
Post-Graduate certificate	30 00

For further particulars and circulars address the Dean,

Prof CHAS. INSLEE PARDEE, M D.,
University Medical College, 410 *East* 26*th St., New York City.*

COLLEGE OF PHYSICIANS AND SURGEONS.

MEDICAL DEPARTMENT OF COLUMBIA COLLEGE.

Corner of Fourth Avenue and 23d St., New York City.

Seventy-First Session, 1877-1878.

FACULTY OF MEDICINE.

ALONZO CLARK, M.D., President and Professor of Pathology and Practical Medicine.
WILLARD PARKER, M.D., Professor of Clinical Surgery.
JOHN C. DALTON, M.D., Professor of Physiology and Hygiene.
THOMAS M. MARKOE, M.D., Professor of Surgery.
T. GAILLARD THOMAS, M.D., Professor of Obstetrics and the Diseases of Women and Children.
JOHN T. METCALFE, M.D., Emeritus Professor of Clinical Medicine.
HENRY B. SANDS, M.D., Professor of Anatomy.
JAMES W. McLANE, M.D., Adjunct Professor of Obstetrics and the Diseases of Women and Children.
THOMAS T. SABINE, M.D., Adjunct Professor of Anatomy.
CHARLES F. CHANDLER, Ph.D., Adjunct Professor of Chemistry and Medical Jurisprudence.
EDWARD CURTIS, M.D., Professor of Materia Medica and Therapeutics.
FRANCIS DELAFIELD, M.D., Adjunct Professor of Pathology and Practical Medicine.
JOHN G. CURTIS, M.D., Adjunct Professor of Physiology and Hygiene; Secretary of the Faculty.
WM. DETMOLD, M.D., Emeritus Professor of Military and Clinical Surgery.
WILLIAM H. DRAPER, M.D., Clinical Professor of Diseases of the Skin.
CORNELIUS R. AGNEW, M.D., Clinical Professor of Diseases of the Eye and Ear.
ABRAHAM JACOBI, M.D., Clinical Professor of Diseases of Children.
FESSENDEN N. OTIS, M.D., Clinical Professor of Venereal Diseases.
EDWARD C. SEGUIN, M.D., Clinical Professor of Diseases of the Mind and Nervous System.
GEO. M. LEFFERTS, M.D., Clinical Professor of Laryngoscopy and Diseases of the Throat.
CHAS. McBURNEY, M.D., Demonstrator of Anatomy.
CHAS. KELSEY, M.D., Assistant Demonstrator of Anatomy.

FACULTY OF THE SPRING SESSION.

JAMES L. LITTLE, M.D., Lecturer on Operative Surgery and Surgical Dressings.
GEORGE G. WHEELOCK, M.D., Lecturer on Physical Diagnosis.
A. BRAYTON BALL, M.D., Lecturer on Diseases of the Kidneys.
MATTHEW D. MANN, M.D., Lecturer on the Microscope as an Aid to Diagnosis.
H. KNAPP, M.D., Lecturer on Diseases of the Eye and Ear.
T. A. McBRIDE, M.D., Lecturer on Symptomatology.

The COLLEGIATE YEAR embraces a special *Spring* and a regular Winter Session, attendance at the latter only being required for the graduating course. The Spring Session begins near the middle of March, and continues till June 1st. *The regular Winter Session* for 1877–78 begins Monday, October 1st, and continues till March, when the College Commencement is held.

TUITION is by the following methods: I. DIDACTIC LECTURES WITH DEMONSTRATIONS. During the *Winter Session*, from five to six lectures are given daily by the Faculty, on the seven general branches of medical science. Attendance obligatory. *Fees*, $20 for the course on each branch, or $140 for the entire curriculum. During the *Spring Session*, two lectures are given daily by the Faculty of the Spring Session. Fees, each branch, $5, or $30 for the whole. II. CLINICAL TEACHING. This important subject receives the fullest attention. Ten clinics, covering all departments of medicine and surgery, are held weekly throughout the entire year in the College building. In addition, the Faculty, being strongly represented on the staffs of the larger city hospitals and dispensaries (such as Bellevue, Charity, and Roosevelt Hospitals, the New York Eye and Ear Infirmary, etc.), give daily systematic clinical lectures in one or more of these institutions, as a regular feature of the college curriculum. Attendance at clinics is optional and without extra charge. III. RECITATIONS are held daily throughout both sessions by a corps of examiners. Attendance optional. Fees, Winter Session, $40; Spring Session, $30; Collegiate Year, $60. IV. PERSONAL INSTRUCTION. *Practical Anatomy* is taught from October to May, and every student is expected to dissect. Fees, $10, good for a collegiate year. Cases of *Obstetrics* are furnished to advanced students without charge. Personal instruction in *Operative Surgery*, *Minor Surgery*, *Physical Diagnosis*, *Ophthalmology*, *Otology*, and *Laryngoscopy*, is also given by special instructors for moderate fees. Attendance optional.

EXPENSES.—The *necessary* collegiate expenses are a yearly matriculation fee ($5, good for a collegiate year), and the fees for the lectures of the Winter Session ($20 for the course on each branch, or $140 for the entire curriculum). A graduation fee of $30 is also charged. The graduating course requires three years' study, and attendance upon two courses of lectures on each of the seven branches of the winter curriculum. Remissions and reductions of lecture fees are made to graduates, theological students, and students who have already attended two full courses. *All fees are payable in advance. Board* can be had for from $6 to $9 a week, and the Clerk of the College will aid students in obtaining the same.

For the Annual Catalogue and Announcement, or for further information, address JOHN G. CURTIS, M.D., Secretary of the Faculty, College of Physicians and Surgeons, corner of 23d Street and Fourth Avenue, New York.

THE

AMERICAN JOURNAL

OF THE MEDICAL SCIENCES

FOR OCTOBER, 1877.

CONTRIBUTORS TO THIS VOLUME.

ROBERT H. ALISON, M.D., *Assist. Phys. to Infirmary for Nervous Diseases, Phila.*
SAMUEL ASHHURST, M.D., *of Philadelphia.*
WALTER F. ATLEE, M.D., *of Philadelphia.*
G. H. BALLERAY, M.D., *of Paterson, New Jersey.*
GEO. HALSTED BOYLAND, M.D., *of Baltimore, Maryland.*
ED. T. BRUEN, M.D., *Physician to the Philadelphia Hospital.*
L. DUNCAN BULKLEY, M.D., *Phys. to Skin Dept., Demilt Dispensary, New York.*
CHARLES S. BULL, M.D., *Surgeon to the New York Eye Infirmary.*
E. B. CHAPIN, M.D., *of Carbondale, Illinois.*
S. H. CHAPMAN, M.D., *of New Haven, Conn.*
C. J. CLEBORNE, M.D., *Surgeon U. S. Navy.*
W. J. CONKLING, M.D., *of Dayton, O., Prof. of Physiology in Starling Med. Coll., Columbus, O.*
P. S. CONNER, M.D., *Prof. of Anat. and Clin. Surg. in Med. Coll. of Ohio.*
J. M. DA COSTA, M.D., *Prof. of Practice of Medicine in Jefferson Med. Coll., Phila.*
LOUIS A. DUHRING, M.D., *Clin. Prof. of Dis. of the Skin in the Univ. of Penna.*
C. W. DULLES, M.D., *of Philadelphia.*
F. B. EATON, M.D., *Acting Assist. Surgeon U. S. Army.*
WILLIAM S. FORBES, M.D., *Surgeon to the Episcopal Hospital, Philadelphia.*
ALLAN McLEAN HAMILTON, M.D., *of New York.*
EDWARD S. HARLAN, M.D., *Surgeon to the* Wills [*Ophthalmic*] *Hospital, Phila.*
ROBERT P. HARRIS, M.D., *of Philadelphia.*
HENRY HARTSHORNE, M.D., *of Union Falls, N. Y.; formerly Prof. of Hygiene in the University of Pennsylvania.*
I. MINIS HAYS, M.D., *of Philadelphia.*
JAMES H. HUTCHINSON, M.D., *Physician to the Pennsylvania Hospital.*
JAMES NEVINS HYDE, M.D., *Professor of Dermatology and Orthopedic Surgery, Chicago Med. College.*
SAMUEL E. JAMES, M.D., *of Frankfort, Kentucky.*
HENRY JANES, M.D., *of Waterbury, Vermont.*
WILLIAM W. KEEN, M.D., *of Philadelphia.*
CHARLES KELSEY, M.D., *Assist. Demonstrator of Anat., Coll. of Physicians and Surgeons, New York.*
R. A. KINLOCH, M.D., *Prof. of Surgery in Med. Coll. of State of South Carolina.*
G. M. KOBER, M.D., *U. S. Army.*
K. V. R. LANSINGH, M.D., *Resident Phys. at Arapahoe Co. Hospital, Denver, Col.*
B. F. LAUTENBACH, M.D., *Demonstrator of Physiology in Univ. of Penna.*
MORRIS LONGSTRETH, M.D., *Lecturer on Pathological Anatomy at the Jefferson Medical College, Philadelphia.*
W. N. McCOY, M.D., *of Jeffersonville, Indiana.*
THOMAS J. MAYS, M.D., *of Upper Lehigh, Pennsylvania.*
CHARLES K. MILLS, M.D., *Lect. on Electro-Therapeutics in Univ. of Penna.*
THOMAS G. MORTON, M.D., *Surgeon to the Pennsylvania Hospital.*
W. F. NORRIS, M.D., *Clin. Prof. of Ophthalmology in Univ. of Penna.*
HENRY D. NOYES, M.D., *of New York.*
HAMILTON OSGOOD, M.D., *of Philadelphia.*
JOHN H. PACKARD, M.D., *Surgeon to the Episcopal Hospital, Philadelphia.*
GEORGE W. RACHEL, M.D., *of New York.*
B. LINCOLN RAY, M.D., *of Philadelphia.*
ISAAC RAY, M.D., *of Philadelphia.*
THOMAS B. REED, M.D., *Surgeon to the Presbyterian Hospital, Philadelphia.*
J. C. REEVE, M.D., *of Dayton, Ohio.*
JOHN B. ROBERTS, M.D., *of Philadelphia.*
W. E. ROGERS, M.D., *of Memphis, Tennessee.*
E. O. SHAKESPEARE, M.D., *Lect. on Refraction and Accom. in Univ. of Penna.*
D. B. SIMMONS, M.D., *Surgeon to Kanagawa Ken Hospital, Japan.*
WHARTON SINKLER, M.D., *Phys. to the Infirmary for Nervous Diseases, Phila.*
J. LEWIS SMITH, M.D., *Clin. Prof. of Dis. of Children in Bellevue Hosp. Med. Coll., N. Y.*
ROBERT MEADE SMITH, M.D., *of Philadelphia.*
M. R. SPEARE, M.D., *of Rochester, New York.*
H. L. THOMAS, M.D., *of Richmond, Virginia.*
L. McLANE TIFFANY, M.D., *Professor of Operative Surgery in the University of Maryland.*
GEORGE R. C. TODD, M.D., *of Barnwell Court House, South Carolina.*
JAMES TYSON, M.D., *Prof. of Gen. Pathology and Morbid Anat. at Univ. of Penna.*
J. F. WALSH, M.D., *of Philadelphia.*
JAMES C. WHITE, M.D., *Professor of Dermatology in Harvard University.*
OCTAVIUS A. WHITE, M.D., *of New York.*
FRANK WOODBURY, M.D., *of Philadelphia.*
ALFRED A. WOODHULL, M.D., *Surgeon U. S. Army.*

A SEMI-CENTENNIAL RETROSPECT.

With this number THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES completes the first half-century of its existence under its present title.

The AMERICAN JOURNAL was projected by the late Prof. Nathaniel Chapman, and the first number was issued as a quarterly in 1820 under his editorship by the publishing house of M. Carey & Son, and under the title of the "Philadelphia Journal of the Medical and Physical Sciences." In 1825 Drs. Wm. P. Dewees and John D. Godman were associated with Dr. Chapman in the editorship, but the editorial work practically devolved upon Dr. Godman. In February, 1827, Dr. Isaac Hays was added to the editorial staff, and in consequence of Dr. Godman's appointment to the Professorship of Anatomy in Rutgers Medical College, requiring his removal to New York, Dr. Hays virtually became the editor.

With a view to making the Journal more broadly representative and national in character, the co-operation of the leading medical minds in all parts of the country was secured, and, in November, 1827, the name of the "Philadelphia Journal" was changed to the AMERICAN JOURNAL OF THE MEDICAL SCIENCES, and Dr. Isaac Hays became its sole editor. In 1869 his son, Dr. I. Minis Hays, was associated with him.

The general plan of the Journal has been unchanged since its origin in 1820; it has always been regularly issued by the same publishing house, and for half a a century it has been under the control of its present senior editor. The increasing progress in the cultivation of the Medical sciences gradually seemed to call for more space, and more frequent communication with readers, and in 1843 the MEDICAL NEWS was commenced as a monthly in connection with the Journal. This sufficed for many years, until the increasing pressure of material led, in 1874, to the issue of another periodical—the MONTHLY ABSTRACT OF MEDICAL SCIENCE—under the same editorial supervision.

A retrospect of this period shows that of the medical journals printed in the English language in existence at the time of the origin of the "Philadelphia Journal," or, as it was afterwards called, the "American Journal," the "Edinburgh Medical Journal" alone survives. The "Lancet" was begun two years later: and it was not until 1828 that our esteemed contemporary, the "Boston Medical and Surgical Journal," was first issued. Of the many journals started in this country between that year and 1845, the "Medical News" and the "American Journal of Insanity" are the only ones still in existence.

The early numbers of the "Philadelphia Journal" bore as a motto the well-known taunt of Sydney Smith: "In the four quarters of the globe, who reads an American book? or goes to an American play? or looks at an American picture or statue? *What does the world yet owe to American physicians or surgeons?*" Undeserved as this taunt may have been in its time, yet it shows what was the estimation in which the American profession was held when the Journal was commenced. In the advance which has since been made, and which has won generous appreciation wherever scientific medicine is cultivated, the "American Journal" may fairly claim to have performed its part.

An examination of the series of the Journal shows that among its collaborators are found the names of all the eminent physicians of the period who have contributed to the reputation of American medicine. They have made it a representative journal of American medicine, and, as such, its files are found and consulted in the principal medical libraries of the world.

Although the Journal is thus venerable in years, it commences its second half-century with the conviction that age has given it experience and position without weakening its vigour, and that a maintenance of the same principles of conduct which have carried it successfully through the vicissitudes of the past fifty years will entitle it in the future to the continued confidence and support of the profession.

TO READERS AND CORRESPONDENTS.

All communications intended for insertion in the Original Department of this Journal are only received for consideration with the distinct understanding that they are sent for publication to this Journal alone, and that abstracts of them shall only appear elsewhere subsequently, and with due credit. Gentlemen favouring us with their communications are considered to be bound in honour to a strict observance of this understanding.

Contributors who wish their articles to appear in the next number are requested to forward them before the 1st of November.

Compensation is allowed for original articles and reviews, except when illustrations or extra copies are desired. A *limited* number of extra copies (not exceeding *fifty*) will be furnished to authors, *provided the request for them be made at the time the communication is sent* to the Editors.

The following works have been received:—

Contribuzione Alla Storia dei Calcoli Salivari con Alcune Osservazioni relative a quelle Concrezioni. Per il Dott. A. Feroci. Pisa, 1877.

Ueber Speichelsteine. Von E. Aukes, aus Amerika. Göttingen, 1877.

Bemerkungen über Dr. G. J. Patton's Experimente über Heufieber. Von Charles Harrison Blackley, M.D. (Bruss.), M.R.C.S. (Eng.).

Guy's Hospital Reports. Third series. Vol. XXII. London: J. & A. Churchill, 1877.

St. George's Hospital Reports. Vol. VII. 1874–6. London: J. & A. Churchill, 1877.

Saint Thomas's Hospital Reports. New series. Vol. VII. London: J. & A. Churchill, 1876.

Internal Urethrotomy, with its Modern Improvement. By Edward Lund, F.R.C.S., Surgeon to the Manchester Royal Infirmary, etc. London: J. & A. Churchill, 1877.

On the Physiology of Sugar in Relation to the Blood. By F. W. Pavy, M.D., F.R.S. London. 1877.

British Medical Association. Scientific Reports. Second Contribution to the Life-History of Contagium. By P. M. Braidwood, M.D., and F. Vacher. London, 1877.

Catalogue of the Radford Library, St. Mary's Hospital, Manchester. By Charles J. Cullingworth, Surgeon to the Hospital. Manchester, 1877.

Congrès Périodique International des Sciences Médicales. 5me Session. Genève (9 au 15 Septembre, 1877). Programme et Règlement. Genève, 1877.

Illustrations of Clinical Surgery. By Jonathan Hutchinson, F.R.C.S. Fasciculus VII. Philadelphia: Lindsay & Blakiston, 1877.

The Practitioner's Reference Book. Adapted to the Use of the Physician, the Pharmacist, and the Student. By Richard J. Dunglison, M.D. Philadelphia: Lindsay & Blakiston, 1877.

An Index of Diseases and their Treatment. By Thomas Hawkes Tanner, M.D., F.L.S. Second Ed. Revised. By W. H. Broadbent, M.D., F.R.C.P., Physician to London Fever Hospital, etc. Philadelphia: Lindsay & Blakiston, 1877.

The Physician's Visiting List for 1878. Philadelphia: Lindsay & Blakiston.

Fat and Blood: and how to make them. By S. Weir Mitchell, M.D. Philadelphia: J. B. Lippincott & Co., 1877.

Nurse and Patient, and Camp Cure. By S. Weir Mitchell, M.D. Philadelphia: J. B. Lippincott & Co., 1877.

Cyclopædia of the Practice of Medicine. Edited by Dr. H. von Ziemssen. Vol. XV. Diseases of the Kidney. By Albert H. Buck, M.D., New York, Editor of American Edition. New York: William Wood & Co., 1877.

Hospitals: Their History, Organization, and Construction. Boylston Prize Essay of Harvard University for 1876. New York: D. Appleton & Co., 1877.

Disease of the Mind. Notes on the Early Management, European and American Progress, Modern Methods, etc., in the Treatment of Insanity, with especial reference to the Needs of Massachusetts and the United States. By Charles F. Folsom, M.D., Sec. of Mass. Board of Health. Boston: A. Williams & Co., 1877.

Some General Ideas concerning Medical Reform. By David Hunt, M.D. Boston: A. Williams & Co., 1877.

The Toner Lectures. Lecture V. On the Surgical Complications and Sequels of the Continued Fevers. By William W. Keen, M.D., of Philadelphia. Washington: Smithsonian Institution, 1877.

Retarded Dilatation of the Os Uteri in Labour. By Albert H. Smith, M.D. Philadelphia, 1877.

Hay Fever, or Pollen Poisoning. By Elias J. Marsh, M.D., of Paterson. Newark, N. J., 1877.

Epithelioma Penis. Operations by Christopher Johnston, M.D., Baltimore.

Morphia in Childbirth. By W. T. Lusk, M.D. New York. 1877.

Notes on Epilepsy. Mechanical Protection for the Violent Insane. By Eugene Grissom, M.D., Supt. of Insane Asylum of N. C.

Aiken as a Health Station. By W. H. Geddings, M.D. Charleston, 1877.

Report on the Management of the Insane in Great Britain. By H. B. Wilbur, M.D. Albany, 1877.

Analysis of 774 Cases of Skin Disease, with Cases and Remarks on Treatment. By L. Duncan Bulkley, M.D. New York, 1877.

The First Operation on Record for the Removal of the entire Arm, Scapula, and three-fourths of the Clavicle. By the late Dixi Crosby, M.D. Reported with comments by his son, A. B. Crosby, M.D. Concord, N. H., 1875.

A Lost Art in Surgery. By A. B. Crosby, M.D. New York, 1877.

Cholera. By C. Spinzig, M.D. St. Louis, 1877.

History of a Case of Recurring Sarcomatous Tumour of the Orbit in a Child, extirpated for the third time, and ultimately causing the death of the Patient. By Thomas Hay, M.D. Philadelphia, 1877.

The Prophylactic Treatment of Placenta Prævia. By T. Gaillard Thomas, M.D. Indianapolis, 1877.

Pneumatic Self-Replacement of the Gravid and Non-Gravid Uterus. Calculi found in the Bladder after the Cure of Vesico-Vaginal Fistule. By Henry F. Campbell, M.D. Augusta, Ga.

A Case of Abdominal Pregnancy treated by Laparotomy. By T. Gaillard Thomas, M.D., New York.

Labour Complicated with Uterine Fibroids and Placenta Prævia. Rare Forms of Umbilical Hernia in the Fœtus. By James R. Chadwick, Boston.

On the Diagnosis of Urethral Stricture by Bulbous Bougies, with Illustrative Cases. By J. William White, M.D. Philadelphia, 1877.

Notes on the Epidemiology of Ohio. By Thomas C. Minor, M.D.

On the Use of Large Probes in the Treatment of Strictures of the Nasal Duct. By Samuel Theobald, M.D. Baltimore, 1877.

The Frequent Association of Disease of the Ear with Insanity. By George C. Catlett, M.D., Supt. Lunatic Asylum, No. 2, St. Joseph, Mo.

Case of Aneurism of the Hepatic Artery with Multiple Abscesses of the Liver. By George Ross, A.M., M.D., and Wm. Osler, M.D. Montreal, 1877.

The Use of the Obstetric Forceps in Abbreviating the Second Stage of Labour. By Edward L. Dunster, M.D. Lansing, 1877.

Diphtheria; Epidemic of 1876–77. By James F. Sullivan, M.D. San Francisco, 1877.

Heredity as a Factor in Pauperism and Crime. By Edward H. Parker, A.M., M.D., of Poughkeepsie, N. Y.

The Association of American Medical Colleges. Detroit, 1877.

Diastasis of the Sternum, by the Violent Action of the Diaphragm during Coughing. By F. J. Lutz, M.D.

Report on Dermatology. By Lunsford P. Yandell, Jr., M.D.

New Intra-Uterine Pessary. Secured and Steadied in Position by Silver Suture. By V. H. Taliaferro, M.D. Atlanta, 1877.

The Psychology of Kathrina. By Thad. M. Stevens, M.D., of Indianapolis, Ind.

Syphilitic Phthisis. By Wm. Porter, M.D., of St. Louis.

On Albumen in the Treatment of Pulmonary Consumption. By E. L. Shurly, M.D., of Detroit. Buffalo, 1877.

Report of Cases of Phymosis and Adherent Prepuce. By John C. Hupp, M.D. Wheeling. 1877.

Supplemental Report upon Therapeutics. By W. C. Van Bibber, M.D. Baltimore,

Sanitary Commonplaces applied to the Navy. By Albert L. Gihon, A.M., M.D., Medical Inspector, U. S. N. Claremont, 1877.

Contributions to the Treatment of Pulmonary Phthisis. By W. Gleitsmann, M.D., Phys. in Charge of the Mountain Sanitarium for Pulmonary Diseases, Asheville, N. C.

Annual Report of the State Board of Health of Massachusetts, January, 1877. Boston, 1877.

Report of the Board of Health of the Births, Marriages, and Deaths in the City of Richmond for the year 1876. Richmond, 1877.

Proceedings and Reports of Sanitary Commission of City of Atlanta, Ga., 1876.

Transactions of the Mississippi State Medical Association. Vol. X. Jackson, 1877.

Transactions of the Medical Society of the State of West Virginia. Wheeling, 1877.

Transactions of Medical Association of Missouri, April, 1877. St. Louis, 1877.

Proceedings of the Connecticut Medical Society, 1877.

Transactions of the Kentucky State Medical Society. Louisville, 1877.

Communications of Rhode Island Medical Society for years 1876–7. Central Falls, 1877.

Transactions of the College of Physicians of Philadelphia. Third series. Volume the third. Philadelphia, 1877.

Transactions of the Medical Society of the District of Columbia, July, 1877.

Proceedings of the Medical Society of the County of Kings, July, August, 1877.

Transactions of the 79th Annual Session of the Medical and Chirurgical Faculty of Maryland, April, 1877. Baltimore, 1877.

Transactions of South Carolina Medical Association, April 1877. Charleston, 1877.

Transactions of the Medical Society of New Jersey, 1877. Newark, 1877.

Proceedings of the Medical Society of the County of Kings, September, 1877.

Proceedings of Academy of Natural Sciences of Philadelphia, Jan., Feb., March, 1877.

Report of the Presbyterian Hospital of New York, 1877. New York, 1877.

Report of the Board of Health of the City of Boston. Boston, 1877.

Delaware State Medical Society, Dover, 1877. Address of the President, JOHN J. BLACK, M.D. Wilmington, 1877.

The following Journals have been received in exchange:—

Deutsches Archiv für Klinische Medicin. Bd. XX., Heft 1, 2, 4.

Centralblatt für die Medicinische Wissenschaften. Nos. 24–35, 1877.

Allgemeine Wiener Medizinische Zeitung. Nos. 24–35, 1877.

Deutsche Medicinische Wochenschrift. Nos. 24–35, 1877.

Upsala Läkareförenings Förhandlingar. Bd. XII., Nos. 6, 7, 8.

Bibliothek for Læger. Vol. VII., No. 3.

Nordiskt Medicinskt Archiv. Bd. IX., Andra Häftet.

Annali Universali di Medicina e Chirurgia. Giugno, Luglio, Agosto, 1877.

Giornale Italiano delle Malattie Veneree e della Pelle. Giugno, Agosto, 1877.

Commentario Clinico di Pisa. Giugno, Luglio, 1877.

L'Imparziale. Nos. 11, 12, 13, 14, 15, 16, 1877.

Lo Sperimentale. Fascic. 7, 8, 1877.

O Correio Medico de Lisboa. Nos. 10, 11, 12, 13, 1877.

Cronica Medico-Quirurgica de la Habana. Junio, Julio, Agosto, 1877.

Archives Générales de Médecine. Juillet, Août, Septembre, 1877.

Annales de Dermatologie et de Syphiligraphie. T. VIII., No. 4.

Annales des Maladies de l'Oreille et du Larynx. Juillet, Septembre, 1877.

Revue des Sciences Médicale en France et de l'Etranger. Juillet, 1877.

Revue Ménsuelle de Médecine et de Chirurgie. Juillet, Août, 1877.

Gazette Hebdomadaire de Médecine et de Chirurgie. Nos. 24–36, 1877.

L'Union Médicale. Nos. 68–105, 1877.

Le Progrès Médical. Nos. 24–35, 1877.

Le Mouvement Médical. Nos. 24–35, 1877.

L'Année Médicale. Nos. 7, 8, 9, 1877.

Revue Scientifique de la France et de l'Etranger. Nos. 51–53, and Nos. 1–9, 1877.

Union Médicale et Scientifique du Nord Est. Juin, Juillet, Août, 1877.

Annales de Démographie Internationale. Mars, 1877.

Gaceta Cientifica de Venezuela. Junio, Julio, 1877.

The usual British, Canadian, and American exchanges have been received; their individual acknowledgment we are compelled to omit for want of space.

Communications intended for publication, and books for review, should be sent *free of expense*, directed to ISAAC HAYS, M.D., Editor of the American Journal of the Medical Sciences, care of Mr. Henry C. Lea, Philadelphia. Parcels directed as above, and (carriage paid) under cover, to Mr. Charles J. Skeet, Bookseller, No. 10 King William Street, Charing Cross, *London*, will reach us safely and without delay.

All remittances of money and letters on the *business* of the *Journal* should be addressed *exclusively* to the publisher, Mr. H. C. Lea, No. 706 Sansom Street.

The advertisement sheet belongs to the business department of the *Journal*, and all communications for it must be made to the publisher.

CORRIGENDA.

In the July number—

Page 26, line 20, for *the* read *these*.
"   47.   "   14, for *not* read *next*.

CONTENTS

OF

THE AMERICAN JOURNAL

OF

THE MEDICAL SCIENCES.

NO. CXLVIII. NEW SERIES.

OCTOBER, 1877.

ORIGINAL COMMUNICATIONS.

MEMOIRS AND CASES.

ART. PAGE

I. The Internal Complications of Acute Erysipelas. By J. M. Da Costa, M.D., Professor of Practice of Medicine in the Jefferson Medical College, Phila., Physician to the Pennsylvania Hospital, etc. 321

II. Thoughts relating to the Prognosis and Treatment of Diphtheria. By J. Lewis Smith, M.D., Clinical Prof. of Diseases of Children in Bellevue Hospital Medical College, New York. 346

III. Retinitis Apoplectica and Embolic Inflammations of the Retina. By Henry D. Noyes, M.D., of New York. 357

IV. Observations on Choked Disk following Injuries to the Head in Children, with Cases. By Charles S. Bull, M.D., Surgeon to the N. Y. Eye Infirmary and to Charity Hospital. 365

V. On the Functions of the Cerebral Lobes. By B. F. Lautenbach, M.D., Demonstrator of Physiology in the University of Pennsylvania. . . 371

VI. The Anatomy of the Brachial Plexus. By J. F. Walsh, M.D., of Philadelphia. 387

VII. Fallacies of Reinsch's Test for Arsenic. By Theodore G. Wormley, M.D., Professor of Chemistry in the Medical Department of the University of Pennsylvania. 399

VIII. A Contribution to the Anatomy of the Human Retina. By W. F. Norris, A.M., M.D., Clinical Professor of Ophthalmology in the University of Pennsylvania, and E. O. Shakespeare, A.M., M.D., Lecturer on Refraction and Accommodation and Operative Ophthalmic Surgery in the University of Pennsylvania. 402

IX. Case of Pemphigus Malignus, in which Arsenic twice appeared to save Life. By L. Duncan Bulkley, A.M., M.D., Physician to the Skin Department, Demilt Dispensary, New York: Attending Physician for Skin Diseases at the Out-Patient Department of the New York Hospital, etc. 408

X. On Colotomy. By L. McLane Tiffany, B. A. (Cantab.), M.D., Prof. of Operative Surgery in the University of Maryland. 413

XI. The Treatment of Traumatic Tetanus by Hydrate of Chloral. By John B. Roberts, M.D., of Philadelphia. 418

ART. PAGE
XII. Spasm of the Muscles supplied by the Spinal Accessory Nerve. By Charles K. Mills, M.D., Lecturer on Electro-Therapeutics in the University of Pennsylvania; Chief of the Dispensary for Nervous Diseases, University Hospital. 425
XIII. Sarcoma of Inferior Constrictor of the Pharynx and Inlet of the Œsophagus. By S. H. Chapman, A.M., M.D., of New Haven, Connecticut. 433
XIV. Strangulated Ovarian Hernia; Operation; Recovery. By G. H. Balleray, M.D., of Paterson, New Jersey. 437
XV. A Case of Spinal Hemiplegia. By Henry Janes, M.D., of Waterbury, Vermont. 440
XVI. A Case of Neuralgia of the Second Metatarso-Phalangeal Articulation. Cured by Resection of the Joint. By Erskine Mason, M.D., Surgeon to the Roosevelt Hospital, New York. 445
XVII. Two New Sutures. By H. L. Thomas, M.D., of Richmond, Va. . 446
XVIII. Two Cases of Hystero-Epilepsy. By Allan M'Lane Hamilton, M.D., of New York. 448
XIX. Case of Oxalate of Lime Calculus, weighing five and one half ounces, successfully removed by lateral operation. By E. B. Chapin, M.D., of Carbondale, Ill. 452
XX. Report of a Case of Spontaneous Closure of a Gangrenous Solution of Continuity in the Intestine resulting from Strangulated Hernia. By K. V. R. Lansingh, M.D., Resident Physician at the Arapahoe County Hospital, Denver, Colorado. 456
XXI. Transverse Fracture of Patella, and Fracture of Skull, with Loss of Brain Substance; Recovery. By C. J. Cleborne, M.D., Surgeon U. S. Navy. 460
XXII. An Extraordinary Case of Biliary Abscess, communicating with the Right Brochus. By D. B. Simmons, M.D., Surgeon to Kanagawa Ken Hospital, Japan. 463
XXIII. A New Rectal Speculum. By Thomas B. Reed, M.D., of Phila. 464
XXIV. Case of Included Fœtation. By W. E. Rogers, M.D., of Memphis, Tennessee. 466

REVIEWS.

XXV. Traité Clinique des Maladies de l'Uterus. Par J. N. Demarquay, Chirurgeon de la Maison Municipale de Sante, Commandent de la Legion d'Honneur, etc. etc., et O. Saint-Vel, Laureat de l'Academie de Médecine, etc. etc. 8vo. pp. 610. Paris, 1876.
A Clinical Treatise on Diseases of the Uterus. By J. N. Demarquay and O. Saint-Vel. 467
XXVI. The Germ Theory applied to the Explanation of Disease; the Specific Fevers. By T. Maclagan, M.D. 8vo. pp. 278. London: MacMillan & Co., 1876. 479

ANALYTICAL AND BIBLIOGRAPHICAL NOTICES.

XXVII. Guy's Hospital Reports. Edited by H. G. Howse, M.D., and Frederick Taylor, M.D. 3d series. Vol. XXII., 8vo. pp. xx., 527. London: J. & A. Churchill, 1877. 484
XXVIII. St. George's Hospital Reports. Edited by W. Howship Dickinson, M.D., F.R.C.P., and Timothy Holmes, F.R.C.S. Vol. VIII., 1874–6. pp. xvi. 580. London: J. & A. Churchill, 1877. . . . 491
XXIX. Medical and Surgical Reports of the Boston City Hospital. Second Series. Edited by David W. Cheever, M.D., and F. W. Draper, M.D. 8vo. pp. xxxv. 316. Boston: Published by the Board of Trustees, 1877. 500

ART. PAGE

XXX. Some Recent Physiological Researches.
  1. On a New Function of the Liver. By B. F. Lautenbach, M.D. Philadelphia Medical Times, May 26, 1877.
  2. Electrical Phenomena occurring in the Heart. By F. B. Lautenbach, M.D. Philadelphia Medical Times, March 31, 1877. . . . 507

XXXI. Eighth Annual Report of the State Board of Health of Massachusetts, January, 1877. 8vo. pp. 398. Boston, 1877. 514

XXXII. Transactions of State Medical Societies.
  1. Transactions of the Illinois State Medical Society, May, 1876, pp. 271, Chicago, Ill., 1876.
  2. Proceedings of the Connecticut Medical Society, May, 1877, pp. 180. Hartford, Conn., 1877.
  3. Transactions of the Mississippi State Medical Association, April, 1877, pp. 180. Granada, Miss., 1877.
  4. Transactions of the Medical Society of West Virginia. May, 1877. pp. 100. Wheeling, W. Va., 1877.
  5. Transactions of Medical and Chirurgical Faculty of Maryland, April, 1877. pp. 190. Baltimore, Md. 1877.
  6. Transactions of the Medical Association of Missouri, April, 1877, pp. 81. St. Louis, Mo. 1877.
  7. Transactions of the State Medical Society of Arkansas. May, 1877. pp. 53. Little Rock, Ark., 1877.
  8. Transactions of the South Carolina Medical Association, April, 1877. pp. xxxvi. 94. Charleston, S. C., 1877.
  9. Transactions of the Medical Society of the District of Columbia, July, 1877, pp. 24. Washington, D. C. 518

XXXIII. Cyclopædia of the Practice of Medicine. Edited by Dr. H. Von Ziemssen, Professor of Clinical Medicine in Munich, Bavaria. Vol. XV. Diseases of the Kidney. By Prof. Carl Bartels, of Kiel, and Prof. Wilhelm Ebstein, of Goettingen. Translated by Reginald Southey, M.D., Oxon., of London, and Robert M. Bertolet, M.D., of Philadelphia. Albert H. Buck, M.D., New York, Editor of American Edition. 8vo. pp. xii. 796. New York: William Wood & Co., 1877. 526

XXXIV. Disease of the Mind. Notes on the Early Management, European and American Progress, Modern Methods, etc., in the Treatment of Insanity, with especial reference to the needs of Massachusetts and the United States. By Charles F. Folsom, M.D., Secretary of the Massachusetts Board of Health. 8vo., pp. 109. Boston: A. Williams & Co., 1877. 529

XXXV. Lectures on the Diseases of the Nervous System. Delivered at La Salpetrière, by J. M. Charcot, Professor to the Faculty of Medicine of Paris, etc. etc. Translated by George Seigerson, M.D., M.Ch. London: The New Sydenham Society. 1877. pp. 325. 532

XXXVI. An Atlas of Topographical Anatomy after Plane Sections of Frozen Bodies. By Wilhelm Braune, Prof. Anat. Univ. Leipzig. Translated by Edward Bellamy, F.R.C.S. With 31 plates and 46 wood-cuts. 4to. pp. xii., 200. Philadelphia: Lindsay & Blakiston, 1877. . . 534

XXXVII. How to Use the Ophthalmoscope. Being Elementary Instructions in Ophthalmoscopy, arranged for the Use of Students. By Edgar A. Browne, Surgeon to the Liverpool Eye and Ear Infirmary, etc. 12mo., pp. 120. Philadelphia: Henry C. Lea, 1877. 536

XXXVIII. Gout; its Cause, Nature and Treatment, with Directions for the Regulation of the Diet. By John Parkin, F.R.C.P. (E.), F.R.C.S., etc. etc. Second ed., 16mo., pp. 144. Hardwicke and Bogue, London, 1877. 537

XXXIX. Medicine and Surgery in Canton. Report of the Medical Missionary Society's Hospital in Canton, China, for the year 1876. By Flemming Carrow, M.D., Surgeon in Charge. 12mo. pp. 24. Hongkong. 1877. 538

XL. The Practitioner's Reference Book, adapted to the Use of the Physician, the Pharmacist, and the Student. By Richard J. Dunglison, M.D. 8vo. pp. 341. Philadelphia: Lindsay & Blakiston, 1877. . . . 541

ART. PAGE
XLI. Reports of American Hospitals for the Insane.
  1. Northern Hospital for the Insane, Wisconsin. Year ending Sept. 30, 1876.
  2. State Lunatic Hospital, at Northampton, Mass. Year ending Sept. 30, 1876.
  3. State Lunatic Hospital, at Worcester, Mass. Year ending Sept. 30, 1876.
  4. New Jersey State Lunatic Asylum, at Trenton. Year ending Oct. 31, 1876. 542

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES IN THE MEDICAL SCIENCES.

Anatomy and Physiology.

PAGE
On the Function of the Spleen. By Dr. M. Schiff. 545
Observations on Gastric Digestion. By F. Kretschy. . . . 546
On the Cause of Sleep. By Dr. W. Preyer. 546

Materia Medica and Therapeutics.

The Therapeutic Action of Salicin. By Prof. H. Senator. . . 547
The Influence of Salicin on the Healthy Body with Special Reference to its Influence on the Temperature. By Dr. Sydney Ringer, and Mr. J. S. Bury. . 548
The Best Anaesthetic. By Mr. Spencer Wells. 549
On the Use of Eserine in Ophthalmic Therapeutics. By Dr. Wecker. 549

Medicine.

On Leuchaemia. By Dr. Chvostek. 550
On Some Points in the Clinical History of Chorea. By Dr. W. Gowers. 551
Syphilitic Brain Disease. . . . 552
Case of Thrombosis of the Cerebral Sinuses. By Dr. Karl Kolb. . 554
Opening an Abscess of the Brain. By Dr. Proust. 556
On the Prevention of Epileptic Fits by Subcutaneous Injection of Morphia. By Dr. E. Vallender. 558
On the Prevention of Epileptic Seizures. By Prof. H. Nothnagel. 559
Acute Ascending Paralysis. By Hermann Eichhorst. 559
Parenchymatous Glossitis. By Dr. T. Sidlo. 560
Notes on Pleuritic Effusion in Childhood. By Dr. Thomas Barlow and Mr. R. W. Parker. 561
Retardation of the Carotid Pulse in Aortic Insufficiency. By Dr. Raymond Tripier. . . . 562
Aneurism of the Hepatic Artery. By Drs. George Ross and Wm. Osler. 565
The Mode in which Lupus Spreads. By Mr. Jonathan Hutchinson. . 570
Collodion Flexile in Eczema. By Dr. Henry Lawson. . . 572

SURGERY.

PAGE
On Surgical Fever after Antiseptic Operations. By Benno Credé. 572
On Trephining for Injuries of the Head. By D. S. Pozzi. . . 573
Retropharyngeal Abscess. By Mr. John Chiene. 574
Two Cases of Aneurism of the Abdominal Aorta; one cured by the Administration of Iodide of Potassium, the other by Arterial Compression. By Dr. G. H. Philipson. 575
The Surgical Function of the Omentum. By Dr. Kenneth M'Leod. 576
PAGE
Extirpation of the Spleen. By Prof. Billroth. 578
Extirpation of the Kidney. By Dr. C. Langenbuch and Mr. Jessop. 579
On the Treatment of Irreducible Luxation by Incision. By Dr. H. R. Ranke. 580
Acute Tuberculosis of Synovial Membrane. By M. Laveran. . 581
On Infra-patellar Hygroma. By Prof. Trendelenburg. . . 582
The Operative Treatment of Genu Valgum. By Dr. A. Ogston. . 583

OPHTHALMOLOGY AND OTOLOGY.

On Amblyopia and Amaurosis after Hemorrhage. By Von Oettingen. 584
Drainage of the Eye by Catgut. By M. de Wecker. . . . 585
On Relaxation of the Membrana Tympani. By Dr. M. Stiller. . 585

MIDWIFERY AND GYNÆCOLOGY.

The Relation between Erysipelas and Puerperal Fever. By Dr. Atthill. 586
Cæsarean Section after Death; Delivery of a Living Child. By Dr. Buckell. 586
Puerperal Infection in New-born Children. By Prof. Hecker. . 587
A New Operation for Prolapse of the Uterus. By M. le Fort. . 588
Injection of Hot Water in Uterine Surgery. By Dr. Runge. . 588
Ovariotomy during Pregnancy. By Mr. Spencer Wells. . . . 590
Abdominal Drainage in Ovariotomy. By Prof. Hildebrandt. . 593

AMERICAN INTELLIGENCE.

ORIGINAL COMMUNICATIONS.

Foreign Body of Unusual Kind in the Air-passages; Tracheotomy; Spontaneous Expulsion after Sixteen Days. By P. S. Conner, M.D. 595
A Case of General Transposition of the Viscera. By Charles Kelsey, M.D. 596

DOMESTIC SUMMARY.

On the Antagonism between Nicotin and Strychnia. By Dr. Francis L. Haynes. 597
A Case of Bony Formation in the Place of the Lens. By Dr. W. J. McDowell. 598
Excision of Astragalus and portion of External Malleolus in a Case of Congenital Talipes Equinovarus. By Dr. Mason. . . 598
Division of the Femur by Subcutaneous Osteotomy. By Dr. J. W. Hamilton. 599

THE

AMERICAN JOURNAL

OF THE MEDICAL SCIENCES

FOR OCTOBER 1877.

ARTICLE I.

THE INTERNAL COMPLICATIONS OF ACUTE ERYSIPELAS.

By J. M. DA COSTA, M.D., Professor of Practice of Medicine in the Jefferson Medical College, Phila., Physician to the Pennsylvania Hospital, etc.

I HAVE often thought that the investigation of erysipelas, as physicians see it, might have a much wider range than is commonly accorded to it; and that a study of the disease from a more general point of view would show it to possess peculiarities which do not at first sight appear. In this spirit I offer this paper as a contribution to the subject, premising that it does not, in many respects, aim at more than the suggestion of topics for analysis, since some of the questions mooted are too large for exhaustive discussion here. But what I wish particularly to show is, that erysipelas, as we meet with it, is a disease having definite and fixed complications, as fixed as those of any general malady; and that their very occurrence is a proof of the general nature of the affection, and of the error of considering it as a mere local disturbance. To prevent misunderstanding, let me say that I have drawn my conclusions exclusively from what physicians call erysipelas, idiopathic erysipelas, especially facial erysipelas.

It would be superfluous to describe the well-known local signs of the disease. I will only recall that on the fourth day usually the swelling has decidedly diminished, and that the cuticle shows here and there signs of peeling off; nor shall I do more than examine into one symptom which belongs to the general disturbance that attends the cutaneous inflammation—the altered temperature.

The *temperature* rises rapidly, and in twenty-four hours attains often to 104° or 105°. During this rise there is a slight morning remission; on the third day usually the fever heat reaches its height, and the morning remission becomes more decided. But where the inflammation is spreading, and intense, the temperature remains continuously high; and in the absence of the morning fluctuations we have a prognostic sign of value. In ordinary cases the fall of the temperature is as remarkable as its sudden rise; after the fever heat has been for a day or two at its height the temperature sinks quickly, usually within twenty-four or thirty-six hours, to a normal standard. This happens generally from the fifth to the seventh day of the affection. If relapses take place the temperature rises again rapidly; and should the case be a protracted one, with occasional aggravation of the disease, the mercury, which has always indicated more than normal heat, shoots up several degrees with each accession of inflammation. Further, there may occur, even after convalescence from the erysipelatous inflammation and complete intermission of the fever, curious and irregular, very marked and rapid rises in temperature, associated with feelings of depression and general disturbance, but without return of the erysipelatous inflammation of the skin. This has not, to my knowledge, been described, and I shall record an illustrative case, selected from several observed. I may add that I have known these returns of febrile condition give rise to the idea of malaria, and surprise expressed that they were not prevented by quinia. They are most likely due to the influence of the poison acting on other points than on the skin; or to septic conditions, or changes in local lesions, which may have been produced in internal organs.

CASE I. *Phlegmonous Erysipelas; High Temperature; Albuminuria; Recovery delayed by several attacks of fever without recurring Erysipelas.*—John F., æt. 48 years, a puddler in a foundry, came into the Pennsylvania Hospital Dec. 29, 1876. He was rather intemperate in his habits, but had a good physique, and generally enjoyed good health. Five days prior to admission he had an attack of coryza, and two days later erysipelas appeared on his nose and spread rapidly over the cheeks. Upon admission, the forehead, right ear, both cheeks, and nose were seen to be tumid, dusky red, and burning. He was feverish, with a temperature of 105½°. The tongue was thickly coated, but moist; he had no appetite; the bowels were constipated. Upon auscultation of the heart no murmur was found; the first sound was dull, the second distinct. The patient was very nervous and slightly delirious.

He was ordered tincture of iron fifteen minims every fourth hour, with bromide of potassium at night (which, however, was soon discontinued); and locally lead-water and laudanum. The urine was clear, orange-colored, acid, of specific gravity 1020, and with a trace of albumen; but no casts were detected.

The albuminuria persisted on Jan. 1st, 2d, 3d, and 4th, and the other symptoms were much the same.

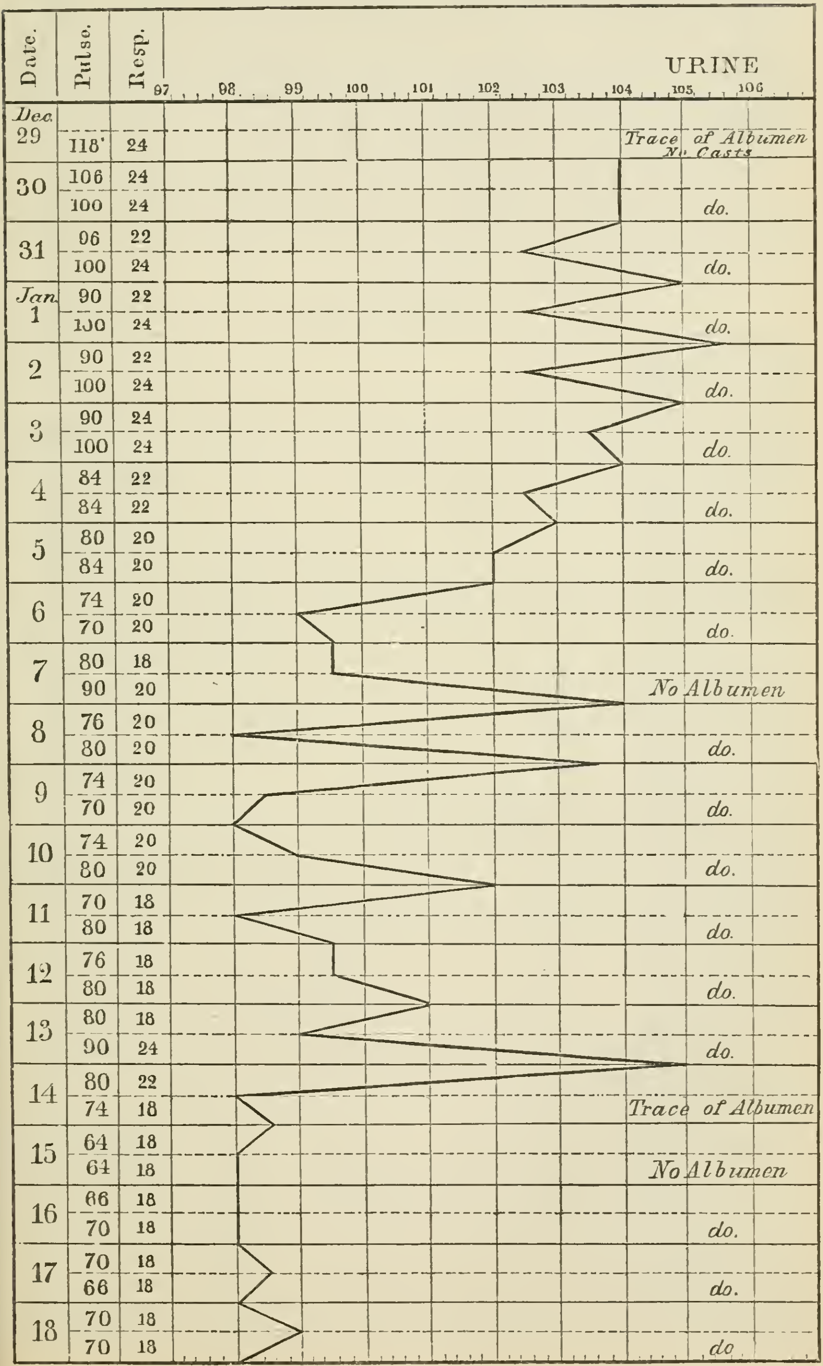
5th. The erysipelas encroached upon the scalp; the patient was more delirious; he was ordered milk punch with two ounces of whiskey daily.

6th. Still delirious, and urine albuminous.

7th. No albumen existed in the urine. The redness was diminishing; the temperature was nearly normal.

8th. The temperature ran up to 104° without obvious cause; there was no albuminuria.

Diagram No. 1.



Date.	Pulse.	Resp.	URINE
Dec. 29			
	118'	24	*Trace of Albumen No Casts*
30	106	24	
	100	24	*do.*
31	96	22	
	100	24	*do.*
Jan. 1	90	22	
	100	24	*do.*
2	90	22	
	100	24	*do.*
3	90	24	
	100	24	*do.*
4	84	22	
	84	22	*do.*
5	80	20	
	84	20	*do.*
6	74	20	
	70	20	*do.*
7	80	18	
	90	20	*No Albumen*
8	76	20	
	80	20	*do.*
9	74	20	
	70	20	*do.*
10	74	20	
	80	20	*do.*
11	70	18	
	80	18	*do.*
12	76	18	
	80	18	*do.*
13	80	18	
	90	24	*do.*
14	80	22	
	74	18	*Trace of Albumen*
15	64	18	
	64	18	*No Albumen*
16	66	18	
	70	18	*do.*
17	70	18	
	66	18	*do.*
18	70	18	
	70	18	*do.*

[illegible] The temperature had again fallen, and the patient was evidently better. No albumen was found. He was ordered ten grains of quinia daily.

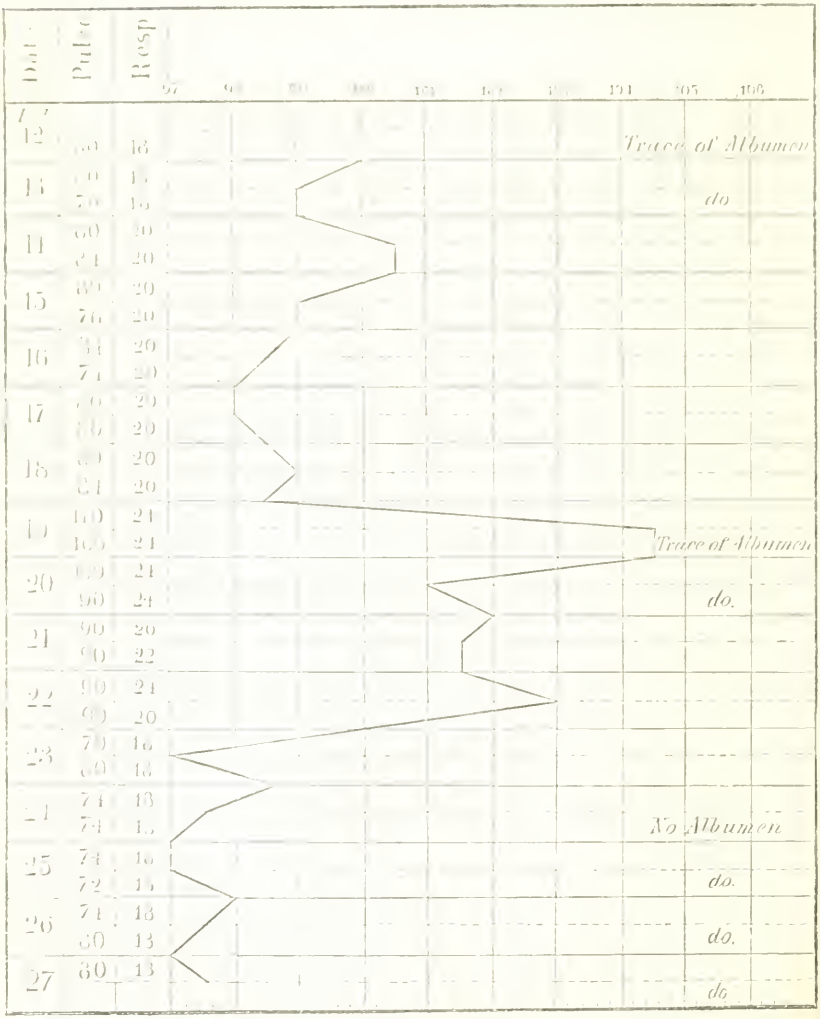
Daily examinations of the urine were continued, and showed the absence of albumen until Jan. 11th, when a trace was present; the patient complained of not feeling quite so well as he had been. His temperature the previous evening had been 105°.

16th. No albumen; temperature 98½° to 98°.

17th. No albumen was found; the patient was convalescent.

25th. Several small abscesses had formed in the scalp after the inflammation had subsided. The patient was gaining strength and was out of bed, but his face was still red and scaly.

Diagram No. 2.



It was noted, Jan. 31st, that the abscesses had healed, except one large one on the back of the neck. Previous treatment was discontinued and tonics given. While convalescing he had, in the month of February, a relapse lasting four or five days, during which a trace of albumen again appeared in the urine for a day or two and then finally disappeared. The relapse was attended with swelling and inflammation of the face, starting apparently from one of the abscesses on the neck. He was discharged, March 29, 1877, perfectly well.

The temperature charts show the sudden rises and some of the attending phenomena.

Now in this instance the temperature rises, except the last, were unaccompanied by recurrence of the erysipelatous inflammation of the face. Sometimes, in the same case, we may have the seemingly causeless outbreaks, alternating or occurring side by side, with relapse of the whole trouble. The next is a case in point. It happened in a patient who interested me much, who was under the care of my colleagues at the hospital, Dr. Hutchinson and Dr. J. Aitken Meigs, and who, besides the outbreaks of high temperature, which here seemed like abortive attacks of the disease, presents a history remarkable for the number of complete relapses that were met with. In the description the temperature record is prominently brought forward.

Case II. *Idiopathic Erysipelas; Temperature* 105°; *Albuminuria: Recovery delayed by several relapses and outbreaks of fever.*—Angus C., æt. 28 years, admitted March 30, 1874, and discharged, cured, June 26, 1874, after three relapses.

Three days before admission the patient was taken with a chill, followed by continued fever with anorexia and constipation, but without vomiting. About the same period his nose began to swell and became red and painful. He was a temperate man, and his previous health was good. When brought to the hospital his features were very much swollen, and the face generally was involved in the disease. He had fever on the evening of admission; his pulse was 96, the respirations were 18, and he had a temperature of 103½°, in the axilla. His tongue was coated, but not dry; and his bowels were constipated. The urine was albuminous, of acid reaction, and with a specific gravity of 1020. Twenty drops of the tincture of iron were ordered to be given every second hour; mucilage of elm was used as a local application.

On the next day he seemed more comfortable, the bowels having been moved by a saline laxative.

Morning, pulse 96; resp. 18; temp. 101°. Evening, pulse 84; resp. 18; temp. 103½°.

April 1. Morning, pulse 80; resp. 18; temp. 101°. Evening, pulse 80; resp. 18; temp. 101°.

2d. Morning, pulse 76; resp. 18; temp. 101½°. Evening, pulse 70; resp. 18; temp. 101.° Improving; face not nearly so swollen.

3d. Morning, pulse 74; resp. 18; temp. 100°. Evening, pulse 86; resp. 18; temp. 103°.

4th. Morning, pulse 74; resp. 18; temp. 100°. Evening, pulse 96; resp. 30; temp. 105°.

5th. Morning, pulse 90; resp. 18; temp. 102°. Evening, pulse 90; resp. 24; temp. 104°.

6th. Morning, pulse 90; resp. 24; temp. 101°. Evening, pulse 86; resp. 20; temp. 103°.

7th. Morning, pulse 90; resp. 24; temp. 100°. Evening, pulse 80; resp. 20; temp. 105°. Some return of the symptoms; a slight relapse.

8th. Morning, pulse 80; resp. 18; temp. 97°. Evening, pulse 86; resp. 24; temp. 102°.

9th. Morning, pulse 80; resp. 18; temp. 99°. Evening, pulse 84; resp. 18; temp. 101°.

10th. Morning, pulse 74; resp. 18; temp. 99°. Evening, pulse 70; resp. 18; temp. 103°.

11th. Morning, pulse 80; resp. 18; temp. 100°. Evening, pulse 74; resp. 18; temp. 102°. Patient weak, but improving steadily.

12th. Morning, pulse 60; resp. 18; temp. 99°. Evening, pulse 70; resp. 18; temp. 100°.

13th. Morning, pulse 64; resp. 18; temp. 98°. Evening, pulse 64; resp. 18; temp. 99½°.

14th. Morning, pulse 64; resp. 18; temp. 99°. Evening, pulse 64; resp. 18; temp. 99°.

15th. Morning, pulse 72; resp. 18; temp. 99°. Evening, pulse 64; resp. 18; temp. 100°.

16th. Convalescing rapidly. No albumen to be detected in urine.

17th. Swelling of face has disappeared.

18th. Is out of bed, and doing well.

26th. Had a relapse this morning, although he was thought to be nearly well. The face became red and tumid as before. Morning, pulse 94; resp. 18; temp. 101°. The iron treatment was resumed. Evening, temp. 102°.

27th. Morning, pulse 100; resp. 18; temp. 102°. Evening, pulse 100; resp. 18; temp. 102°.

28th. Morning, pulse 100; resp. 18; temp. 102½°. Evening, pulse 90; resp. 18; temp. 101½°. Swelling diminishing.

During the next week the patient rapidly improved, and was again allowed to walk around the ward. He seemed to have quite recovered, although, as it appears, not definitely, for on May 5th he had a complete return of the symptoms. This relapse only lasted three days, the temperature on the 12th being normal, and the swelling having greatly decreased; four days later he was out of bed, convalescent.

May 19. The evening temperature was 103°; redness having reappeared in the face on the previous day. The iron treatment was again instituted.

20th. The morning and evening temperatures were alike, 102°; the next morning it was 102°, and in the evening 103°.

22d. Morning, pulse 88; resp. 24; temp. 98°. Evening, pulse 96; resp. 24; temp. 101°.

23d. Morning, pulse 108; resp. 18; temp. 101½°. Evening, pulse 76; resp. 18; temp. 97°.

24th. Morning, pulse 98; resp. 24; temp. 100½°. Evening, temp. 97°.

25th. Morning, pulse 108; resp. 24; temp. 105°. Evening, pulse 108; resp. 18; temp. 101½°.

26th. Morning, pulse 108; resp. 24; temp. 105.

The high temperature of the last two days was unattended by any outbreak of erysipelatous redness or swelling.

27th. No fever this morning. The urine was acid, had a specific gravity of 1012, and was slightly albuminous.

As it was thought possible that there might be some malarial element in these repeated attacks, the patient had been placed on sixteen grains of quinia sulphate daily, but without preventing an outbreak, during which the erysipelas of the face returned.

28th. Morning, pulse 80; resp. 18; temp. 99°. Evening, temp. 104½°.

29th. Morning, pulse 74; resp. 18; temp. 98½°. Evening, pulse 100; resp. 24; temp. 105°.

30th. Morning, pulse 70; resp. 18; temp. 97½°. Evening, pulse 84; resp. 18; temp. 102°.

31st. Morning, pulse 84; resp. 18; temp. 101°.

June 1. The patient had a normal temperature, and the redness was disappearing. He was ordered Fowler's solution five minims three times daily, with iron and quinia. Under this treatment he continued to improve until the 15th of June, when some puffiness of the eyelids was noticed, and the arsenic was discontinued; this symptom had nearly disappeared three days later. From this time his improvement was rapid and without further interruption, except that a stye appeared on the upper eyelid. There was no albuminuria. He returned to his work June 26, 1874.

The first of the internal complications which I shall describe is the *kidney disorder*. It is very common, indeed so common that I dislike to call it a complication; it seems rather an essential part of the disease. The affection shows itself chiefly by the presence of albumen in the urine; and the occurrence of albuminuria in erysipelas is a matter that has been noticed by several recent observers. But what has not been noticed is, that albuminuria is the rule, not a mere accident in erysipelas; that it happens with quite as great or even greater frequency as in diphtheria or in scarlet fever. I have been studying this subject for a number of years, and now know that I am correct in deducing from many observations the rule that albuminuria is present in every case of marked erysipelas; even in light cases it will exist as a transitory phenomenon, perhaps for a day. As regards the time at which the albumen appears in the urine, it is not generally found the first few days—though Case XVII. proves that decided renal trouble may be present early—but as the disease has reached its height, or as desquamation is beginning. The albuminuria passes away as a rule with the acute disorder, at least I have never known a permanent renal difficulty result from the derangement of the kidney that occasions it, though I have known it to be present long after convalescence. During those temperature rises above described, following the first outbreak, it may reappear in the urine in small quantity, but usually does not, while in the course of a regular relapse it is much more common, particularly if the relapse be of any duration. Yet, generally speaking, it is not so marked nor so constant in the relapse as in the first outbreak.

The amount of albumen present in the scanty urine is not large, and in light cases very slight. When decided, we are apt to find also slightly granular renal epithelium, and epithelial or fibrinous casts and an excess of urates. Blood casts, like those in the urine of acute Bright's disease as in scarlet fever, I have most rarely encountered; but free blood corpuscles and leucocytes are not infrequent.

I subjoin a few cases, selected from a considerable number, that will illustrate the remarks just made.

Case III. *Erysipelas of the Face extending to the Scalp, coming under Observation on the fourth day; Marked Hebetude and Delirium; Albuminuria and Renal Casts appearing coincidently with Desquamation of the Face, and ceasing on recovery from the original disease.*—Albert C., æt. 25, was received into the medical ward of the Pennsylvania Hospital January 17, 1868. As the patient was in a condition of marked hebetude, no trustworthy history could be obtained of him except that he had been sick for about four days. Upon admission the entire surface of his face was covered with an erysipelatous blush, which was extending to the scalp. The lungs were clear. The bowels were constipated. During the day his condition became worse, and towards evening there was active delirium, making it necessary to confine him to his bed by straps. He was ordered tincture of iron, quinia, and milk punch.

On the 19th the violence of the inflammation had greatly subsided, and spots of desquamation appeared on the face. He was still restless and wandering, but his pulse had improved in force. The bowels were opened daily, and, as far as could be observed, the urinary secretion was moderately free, although, owing to the condition of the patient, it was difficult to collect sufficient for testing. A specimen examined was bright yellow in colour, acid in reaction, sp. gr. 1020, and was about one-third albuminous. There was a small deposit containing a number of fibrinous and granular casts. The next day the proportion of albumen decreased to one-eighth, the casts were still present; the face was desquamating freely. On the 24th the albuminuria still existed to the extent of one-eighth of the bulk, but there were fewer casts. The next day, January 25, the urine was pale-yellow, sp. gr. 1023, neutral in its reaction, and contained about one-twelfth albumen. There was a large deposit showing uric acid in considerable quantity, and some amorphous urates and granular cells. On the 28th the albumen remained about the same, a few granular casts were found, with renal epithelium and urates. There had been steady improvement, the inflammation had subsided, and the skin of the face was still peeling off. No abscesses appeared. The next day he was considered fairly convalescent, his appetite was good, the bowels were regular, the urine was passed in fair quantity, in which no albumen was appreciable. He steadily recovered, and was discharged well, no albumen having been detected after the last note.

Case IV. *Idiopathic Phlegmonous Erysipelas appearing four days previous to entering hospital; Sore Throat; Dorso-lumbar Pains; Weakness of Circulation; Congestion of the Lungs; Hematuria; Albuminuria disappearing during Convalescence; Recovery delayed by a slight relapse, during which there was no return of the Albuminuria.*—John B., æt. 25, was admitted February 1, 1867. He made the following statement concerning the onset of the disease: On the Saturday previous to his admission (Jan. 26) he felt quite sick, having headache and flitting pains through his body, but, as he had been suffering from a severe cold for three days, he did not attach much importance to the additional discomfort until the 28th, when he noticed the presence of a red and painful spot on the bridge of his nose. This redness gradually spread over the entire face, and was accompanied by swelling of the features, fever, disgust for food, and constipated bowels.

He was admitted on the fourth day of the disease, when it was observed that the entire surface of his face was red, swollen, and burning, the eyes were tightly closed, and the inflammation was apparently encroaching on the scalp. His throat was sore, and he complained of dorso-lumbar pain. His pulse was 116, with a tendency to dicrotism, the heart-impulse was forcible. The respirations were 44 to the minute, and signs of general pulmonary congestion were detected by auscultation. He was ordered stimulants, an abundant supply of milk, and tincture of iron in full doses, with chlorate of potassium.

The next day the swelling of the face had decidedly decreased, and there was a slight purulent discharge from the edge of the lid of the right eye. The congestion of the lung had greatly diminished, a slight cough still remaining. The respirations were reduced to 20, and the pulse to 96. He appeared rational, and spoke intelligently through the day, but became delirious towards evening.

Feb. 6. His urine for the past two days has been decidedly albuminous, depositing crystals of uric acid, with small granular cells, but no tube-casts were discovered, though a granular mass closely resembling a cast, and possibly of that nature, was seen.

There was no further disposition on the part of the disease to spread over the scalp or into the mouth, and the skin of the face was observed to be desquamating. The lungs have cleared up completely. An abscess of upper lid of the right eye was lanced.

On the 8th, it was noted that the erysipelatous inflammation of the face had disappeared, but the abscess above the eye was still discharging. The urine examined the day previous was found to be smoky, and the deposit slightly tenacious; it was of sp. gr. 1018, and was less albuminous than before, but there was a heavy precipitate of the chlorides. It contained large crystals of uric acid, blood crystals, and renal epithelium, with fragments of granular epithelial tube casts. Examined Feb. 10th, only a trace of albumen existed; there was a large deposit of phosphates and urates, but the chlorides were normal. The next day the albumen was entirely absent, and did not return during the remainder of his illness, although daily examinations of the urine were instituted for its detection. His temperature now was nearly reduced to the normal standard, and the face was desquamating freely. He had become emaciated, but was rapidly regaining strength. During the few days preceding this note he became temporarily quite deaf in both ears.

Steady improvement continued, and he was allowed to get out of bed on the 20th of February. On the 21st the erysipelas again attacked his face, and by the next evening had involved the whole right side of the face. His temperature was 104°, pulse 120, weak and slightly dicrotic; he was restless and feverish, his stomach was irritable, and his bowels constipated. The urine was pale-amber, acid, sp. gr. 1009; it contained a trace of phosphates, but no albumen nor casts. On the 25th the temperature was 99°, and he was evidently improving. No delirium occurred during the relapse, and no albuminuria existed. March 8, it was noted that not a trace of the erysipelas remained, save the scars above the right eye, and he was regarded as completely and finally convalescent.

As regards the time of the occurrence of the albuminuria, it has already been stated that it generally appears as the local trouble has reached its height of the second degree until decline and desquamation here and there commences. Now, if the urine be examined before the third or fourth day, albumen will in general be detected; or if analyzed late in the disease (as in Case C. D., Case 1st, Pennsylvania Hospital Notes, not seen until the second day of the disease), the abnormal ingredient will not be found, although renal epithelium will still be discerned, and although it is extremely likely that the albumen has previously existed. How passing the albuminuria may be, was learned from this patient:—

CASE V. *Idiopathic Erysipelas, seen on the third day; Transient Albuminuria without Casts; comparatively low temperature; attack ending favorably.*—Kate D., æt. 26 years, domestic, born in Ireland, admitted April 1, 1875, the disease having appeared two days before. She had received no wound or scratch, and knew of no special cause for the attack. It first began on the nose and soon involved the entire face, but did not extend to the scalp. At the onset there was fever but no chill, the bowels were constipated. Urine examined on day of entering the ward was found to be acid, sp. gr. 1028, and contained a small amount of albumen, but no casts were discovered. No albumen was detected after the second day of her stay in the hospital. Delirium was not observed subsequently to her admission to the hospital, and none was reported as existing prior to that date, but headache certainly was present. The temperature did not rise above 99½°, and on the third day was normal, when she became convalescent. She was in a few days discharged, having rapidly recovered. The treatment was by frequent doses of tincture of chloride of iron, occasional laxatives and demulcent applications.

The state of the kidney which produces the albuminuria is that of congestion, congestion primarily of the cortical substance. Subsequently an accumulation of renal epithelium takes place in the uriniferous tubules: these become here and there clogged and distended, in other instances they are denuded; everywhere within them the epithelium is very granular. The whole organ is increased in size, and if the albuminuria be at all persistent, a certain amount of exudation takes place, particularly in and around the convoluted tubes, there is an overgrowth of connective tissue, and the entire appearance is decidedly that of a parenchymatous nephritis. The changes were carefully studied in this case:—

CASE VI. *Phlegmonous Erysipelas involving Face and Scalp, beginning five days before treatment; Violent Delirium; Coma; Death; Autopsy showing Granular and Fatty Degeneration of Liver and Kidneys.*—John R., æt. 46, fisherman, was admitted February 18, 1868. He had been drinking to excess for a number of years, and his general health had become impaired in consequence. He was taken ill five days before admission, with erysipelatous swelling of the face and enlarged cervical lymphatic glands under the angles of the lower jaw. The inflammation rapidly extended and invaded the scalp, and on the 16th of February he became delirious, and the next morning was so violent that it was necessary to hold him in bed. On this day—the day preceding his admission—the skin under his eyes exuded pus and blood, which formed a crust, resembling eczema. He entered the hospital in a state of low delirium and approaching coma. His face, head, and neck were enormously swollen, and the eyes were completely closed. Abrasions of the skin were seen under the eyes, behind the ears, and under the occiput; from the surface of these places pus mixed with blood was escaping in considerable quantity. His pulse was barely perceptible, the surface of the body was cool and covered with clammy sweat. He was moribund when admitted, and died the same evening. No urine could be obtained for examination.

Autopsy.—The examination was restricted to the abdomen. The liver was enlarged, yellow and fatty. The kidneys were large and flabby, and their capsules appeared to be slightly thickened, but were smooth. Upon section, the general colour of the surface was a reddish yellow. The medullary cones were indistinct and widely separated. No line of demarcation was visible between the cortical and medullary substance, and the normal appearance of the secreting portion was greatly changed. Examined microscopically the gross appearance of granular degeneration was confirmed; there was an abundance of free oil globules. The epithelium of the straight and convoluted tubes was darkly granular, it was in many places peeled off, and in others was seen to be plugging the tubes. A decided increase of parenchymatous texture was determined, and in no part of the kidneys could perfectly healthy structure be found—healthy as to colour and normal character of secreting cells.

As this case happened in a person of intemperate habits, it is most probable that the markedly fatty condition of the kidneys was largely the result of alcoholism and did not belong to the acute malady which terminated his life. But the other appearances were the same as I have met with in a number of post-mortem examinations, even a certain amount of coarse fatty change mixed with the granular degeneration of the epithelium. Let me also call attention to the corresponding alteration of the liver. It is not a mere coincidence. Granular infiltration of the hepatic cells and some fatty change I have witnessed very often in erysipelas, and even to the naked eye the liver may have the pale or yellowish appearance indicative of this change. Perhaps the feeling of distress in the hepatic region of which some patients affected with idiopathic erysipelas complain may be connected with the lesion. But I have not any positive clinical evidence to offer on this point.

A very interesting question growing out of the study of albuminuria found in idiopathic erysipelas is, Does it equally happen in traumatic erysipelas? Of course the fairest way to answer this is to take for investigation cases where the erysipelas has followed injuries about the face and neck; in other words, where the local erysipelatous inflammation would be much the same. Dr. Frank Woodbury, to whom I am greatly indebted for much valuable assistance in preparing this paper, has examined for me the hospital books for a series of years, and has found five cases bearing on the point in which the urinary analyses were recorded; two of them had been in the medical ward under my own care, the rest under the charge of my surgical colleagues. Only in one instance was albuminuria discerned; and I believe the truth to be that, while albuminuria does occasionally happen in traumatic erysipelas about the head and face, it is less [illegible] than in the idiopathic variety. Here are a few cases [illegible] to these statements:

Case VII. *Traumatic Erysipelas; Delirium but no Albuminuria [illegible] Observation.*—Fred. S——, 29 years of age, an American sailor, was admitted November 10, 1873. While on a drinking bout, about two weeks before, he fell and struck his nose and slightly abraded the surface. Four days later it became painful, then tumid, sore, and discoloured; this was soon followed by loss of appetite, fever, and prostration, and he was laid up for three days before admission. When he entered the ward the swelling was just beginning to decline, but for a few days afterwards he had fever and muttering delirium. The urine was high coloured, acid, spec. gravity 1025, and contained no albumen. He was well November 21, and was discharged a few days later.

Case VIII. *Traumatic Surgical Erysipelas; no Albuminuria; Temperature 101°, falling to 98° on third day after admission.*—John L——, 36 years of age, a labourer, and a man of regular habits, was admitted July 7, 1871, and discharged July 25, 1871. He gave the following history: Eighteen days before entering the ward he underwent an operation for removal of a tumour from his right cheek. The wound healed kindly in about one week. Two weeks subsequent to the operation (July 4) his face began to swell, and in the course of a few days became generally tumid, burning, and discoloured.

Upon admission, the face was red and swollen, principally on the right side, and pitted slightly on pressure; the scalp was not inflamed, but was very sensitive. The appetite was poor, tongue yellowish, and bowels constipated. His temperature was 101° in the evening. The treatment consisted in laxatives, in iron, and in cooling applications. The urine examined the next morning was found to be cloudy, acid; spec. grav. 1014, but no albumen was at any time detected. He steadily improved; his temperature after the third day remained normal, and he assisted about the ward for some time before he was discharged.

Case IX. *Traumatic Erysipelas; no Delirium; Transient Albuminuria; Sore Throat; Recovery.*—Axel H——, 29 years, sailor, born in Sweden, came into the men's medical ward December 20, 1873. One week before, while on a carouse, he fell and cut his cheek, and twenty-four hours later erysipelas set in with a chill and high fever. The entire face was soon involved, the eyes being completely closed when he was admitted, but the disease did not invade the scalp. No delirium was noted after his admission. He complained of sore throat, anorexia, and constipation. The urine when first examined (December 21) was high coloured, acid, spec. grav. 1024, and slightly albuminous. The next day a trace of albumen was detected, but on the 23d it finally disappeared. He was discharged cured January 5, 1874.

He was treated by effervescing draught, tincture of iron, and infusion of elm bark locally.

The question just raised requires further elucidation; and I venture to call the attention of surgeons to the matter, as needing determination not only in traumatic erysipelas of the face and neck, but in all other kinds of erysipelas.[1] To recur, however, to the albuminuria of idiopathic erysipelas. What is its cause? The fact just stated, of the occasional presence of albuminuria in traumatic erysipelas: the circumstance that after extensive burns it may be noticed; the well-known close physiological connection between the skin and the kidneys, might prompt the explanation that the renal trouble is a secondary result of a local skin disorder. I cannot think it is so. Considering its constant, I might say almost invariable, occurrence; that it makes its appearance at a fixed time in the affection; that while a purely local damage, such as a burn, may cause albumen in the urine, it yet requires to produce it a very extensive surface injury—very different from the comparatively slight extent of skin involved in idiopathic erysipelas—I am led to the conclusion that the renal disturbance forms part of the general morbid process, which, perhaps on account of the close sympathy between skin and kidneys, attacks these by preference next to the skin. Another explanation might be, that, like the albuminuria of low fevers and occasionally of rheumatism, it is the result of the blood changes, and of the altered circulation and nutrition which take place in the kidneys. This may be true; yet the constancy of the phenomenon, the regularity of its course, and the relation in time it evidently bears to certain changes in the skin, make the former explanation seem the more correct. But I cannot see any inconsistency in, to a certain extent, adopting both of these views. They both presume general causes at work rather than an indirect result of mere local alteration.

---

[1] So far as I know, the internal changes in surgical erysipelas have been systematically studied only by Ponfick (Deutsche Klinik, 1867), and in his very able paper he

Next to the kidney affection in frequency, and presenting far graver issues as to recovery, is the *cerebral disturbance*. This manifests itself in restlessness, disturbed sleep, headache, giddiness, but especially in delirium. This symptom is far more common than is usually supposed. In truth, in marked cases it is, I think, the rule to meet at the height of the disease with a certain amount of nocturnal delirium. Generally the mental wandering is mild; but it may be the reverse; and some epidemics are characterized by the occurrence of early and wild delirium. In instances in which the cerebral disorder, especially the delirium, is very decided, it has been supposed to be due to an extension of the erysipelatous inflammation to the brain. Let us see what its cause really is.

states that the kidneys are found in a condition of parenchymatous nephritis. But the descriptions, based on an epidemic in Heidelberg, are so mixed up with those of suppurative and pyæmic trouble, that it is difficult to accept them as establishing a rule; and a thorough study of pure cases of surgical erysipelas, under varying circumstances, is necessary to come to a definite conclusion.

On the other hand, the frequency with which erysipelas happens in renal diseases—a fact which of course we must bear in mind in determining that the albuminuria in any case of erysipelas is not due to previous kidney trouble—is thoroughly appreciated by surgeons, as we learn from the forcible words of that masterly writer, Sir James Paget. Quoting (*Clinical Lectures and Essays*) a case of chronic pyæmia, and referring to the seeming transmutability of pyæmia with erysipelas, cellular inflammation, and puerperal fever, he notices that albuminuria is a predisposing cause of erysipelas, and states that it is a condition which renders a patient so liable to erysipelas that if it were ascertained beforehand no prudent surgeon would think of operating.

An obvious suggestion, other than the one just alluded to, and one that after the investigation into the condition of the urine we have just been making seems very likely, is, that the cerebral symptoms may be due to uræmia. I do not think that they are. Stupor, coma, or convulsions, rather than mental wandering, are the usual features of uræmic poisoning; and though I believe that the want of full action in the clogged kidneys will keep the blood impure and aggravate the cerebral disturbance, it does not seem sufficient to cause it. Then I have met with instances in which the kidney affection was decided, and even renal casts were found, without delirium or any other sign of brain distress being present. This is a case in point.

Case X. *Facial Erysipelas with Albuminuria and Tube-casts in the Urine; no Delirium; Temperature not over* 100°; *Recovery.*—Margaret C. (2105), 25 years; domestic; born in Ireland; admitted April 17th, 1873. Two days before entering the hospital her left eye became œdematous, hot, and painful, and the remainder of the face soon participated in the morbid action. She could assign no cause for the onset of the disease. These symptoms were accompanied by fever, but were not ushered in by a chill. The urine, examined the morning after admission, was moderately albuminous, and contained a few granular tube-casts; its reaction was acid, its specific gravity 1031, and it was dense with urates. The urine was re-examined several times during her stay in the ward, and showed gradually diminishing amounts of albumen, and on the 28th of April, when she was fairly convalescent, only the faintest trace was discovered. During her residence at the hospital her temperature did not rise above 100° F., and no delirium was noticed. She was discharged cured on the 1st of May, 1873.

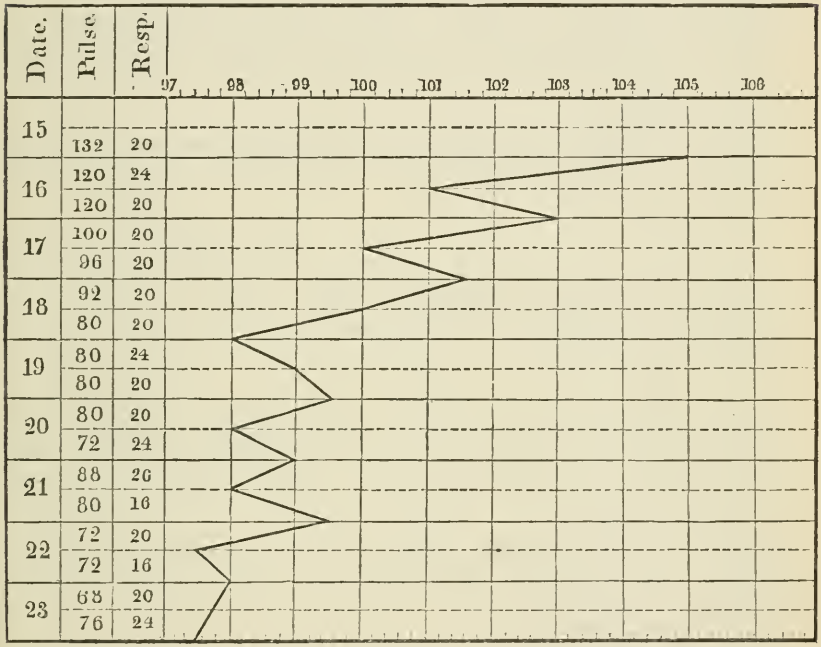
The treatment was by tincture of the chloride of iron and cool dressings.

Is the brain disturbance due to the high temperature; is it merely another sign of the intensity and gravity of the fever process? Now, here it must be stated that as a rule the cases that present high temperature have more or less prominent brain symptoms, and the reverse is true. Yet it is because they are bad cases, and suffering from intensity of the poison and of the local affection, that they are apt to have alike the cerebral disorder and the high temperature, and not because one depends on the other. For I have known on the one hand a high temperature to exist without delirium or other signs of brain annoyance, and on the other hand marked delirium to be present without high temperature. Here are some illustrative cases:—

Case XI. *Erysipelas following Coryza; Albumen increasing under observation, but finally disappearing during Convalescence; Temperature* 105°; *No Brain Symptoms.*—Catharine H., æt. 27, born in Ireland, a domestic, was received into the Women's Medical Ward of the Penna. Hospital, Feb. 15th, 1875. She had been suffering from a coryza for nearly two weeks, and on the day but one before admission she had a chill, followed by an accession of fever, and she noticed that her nose was becoming red and swollen. In the course of the next twenty-four hours her entire face became involved. She had fever, anorexia, furred tongue, and constipation.

Upon admission, it was noted that her whole face was swollen and exhibited an erysipelatous blush, her eyes were nearly closed, but the disease had not invaded the scalp. There was considerable febrile movement; temperature 104½°.

Diagram No. 3.



The urine was acid, of sp. grav. 1030; it was opaque with a copious deposit of urates, and a trace of albumen was detected, but no casts were found. She was directed to take the muriated tincture of iron (gtt. xx every three hours), alternating with fever mixture, and locally infusion of elm was applied. The evening temperature was 105°, the pulse 132, the respirations were 20. There was no delirium.

Feb. 16. The face was ordered to be painted twice daily with a mixture of carbolic acid, ʒj to ℥vij of water.

Morning temperature 101°; pulse 120; respiration 20. Evening temperature 103°; pulse 100; respiration 20.

The next morning she was ordered twelve grains of quinia sulphate through the day; the fever mixture was stopped. The bowels were to be occasionally moved by a mild laxative.

The face was decidedly better. The urine now contained an abundant proportion of albumen, but no casts were discovered.

The temperature was 100°; pulse 96; respiration 20. In the evening temperature 101.5°; pulse 92; respiration 20; it was found necessary to discontinue the quinia, as it occasioned persistent vomiting. The follow-

[illegible] day the vomiting had ceased, and she appeared to be steadily improving. Evening temperature 99.5°.

On the 20th the temperature had become normal, and the iron was ordered to be given only four times daily; two grains of quinia were taken with each dose without producing nausea. A trace only of albumen remained in the urine.

An erythematous eruption had appeared on the forehead, the remainder of the face was desquamating freely. The carbolic lotion was discontinued, and an ointment of acetate of lead was substituted.

Upon auscultation it was found that the first sound of the heart was somewhat defective; the second was distinct—there was no murmur.

On the next day benzoated oxide of zinc ointment was applied to the face, complaint having been made that the prescription of the day before caused smarting.

On Feb. 23 there was no albumen in the urine; the iron was ordered to be reduced to three times a day. The next morning she was out of bed, and in a few days was discharged. She left the hospital March 1st, 1875, perfectly well.

Besides this case I may refer to the record of Angus C. (Case II. of this paper), with a temperature more than once of 105°, yet never delirious; and as an instance of marked delirium without high temperature I may cite the following. The thermometer only once marked 101.5°; it mostly ranged between 100° and 102.5°.

Case XII. *Idiopathic Erysipelas; Hebetude, Delirium; Fever Heat; Albuminuria disappearing during Convalescence; Pharyngitis; Recovery.*—James P., seaman, 24 years of age, admitted to the hospital Jan. 8th, 1874, discharged cured Jan. 31st, 1874. He had been ill on board ship for eight or nine days previous to his arrival at Philadelphia. Very little in the way of a connected account of his illness could be obtained from him, as he was dull and heavy and at times had much delirium. There appeared to be nothing to warrant the supposition that he had received any wound or scratch, nor, indeed, could he remember having been injured.

Upon admission his face was markedly swollen, the eyes were completely closed. His throat was so sore that he was scarcely able to swallow. The dusky redness of the skin covered the face, extending from the roots of the hair well down on the neck. The urine was of a dull amber colour, contained many urates, was acid, of sp. gravity 1020, and decidedly albuminous. The pulse was 80, and the respirations 24 to the minute; the axillary temperature was 101°. He was ordered to have twenty drops of the tincture of the chloride of iron every hour, whiskey four ounces daily, lead-water and laudanum to the face, and as much milk as he would use.

The next morning his condition was about the same; the urine was still albuminous. Treatment was continued.

Jan. 9. Morning, pulse 86; resp. 20; temp. 100°. Evening, pulse 96; resp. 30; temp. 102°.

10th. Morning, pulse 90; resp. 24; temp. 99. As he was not passing much urine, he was ordered two drachms of bitartrate of potassium to be dissolved in water and taken night and morning. A mixture of Monsel's solution and glycerine was applied to the throat, and the surface of the body was directed to be sponged off freely with water. Examination of the heart showed the following signs: the first sound was short, and the impulse was deficient in vigour, almost like a typical fever heart. The second sound was very distinct. The pulse was of fair volume and moderately compressible. The kidneys were acting well, and the bowels freely opened.

11*th*. Morning, pulse 90; resp. 18; temp. 101°. Evening, pulse 90; resp. 18; temp. 98°.

12*th*. Morning, pulse 92; temp. 102.5°. Evening, pulse 96; resp. 18; temp. 104.5°. Iron directed to be given only every three hours.

13*th*. Morning, pulse 84; resp. 18; temp. 100°. Evening, pulse 84; resp. 18; temp. 103. His mind was somewhat clearer, but there was still considerable delirium; he was now able to open his eyes, but his tongue continued to be dry and coated in streaks. The urine had been examined daily; it continued albuminous, though in a decreasing degree. The whiskey was increased to eight ounces daily, in milk punch.

14*th*. Morning, pulse 88; resp. 18; temp. 101.5°. Evening, pulse 84; resp. 24; temp. 101.5°. The patient was doing well and getting stronger, although there was still some wandering at night. The urine was not albuminous for the first time since admission.

15*th*. Morning, pulse 88; resp. 18; temp. 100.5. Evening, pulse 80; resp. 18; temp. 101.5°.

16*th*. Morning, pulse 74; resp. 18; temp. 100°. Evening, pulse 78; resp. 18; temp. 98. It was now noted that his face was less swollen; he could open his eyes; his throat was so much better that he swallowed with ease. The mind was clear. The whiskey was reduced to six ounces daily.

On January 17th the urine was examined and found to be of neutral reaction, specific gravity 1012; it contained no albumen. No tube casts were seen on microscopic examination. From this date he steadily improved in strength until he felt well enough to return to his duties on ship-board.

The brain symptoms of erysipelas have been, as already stated, generally attributed to an extension of the inflammation to the brain. And this view, not long since the only one, and ably advocated by such writers as Sir Thomas Watson and Trousseau, as at least of frequent occurrence, is still very prevalent, as may be judged, for instance, by the statement in Niemeyer's well-known text-book: "A far more serious but less common complication is the extension of the inflammation from the scalp to the meninges." Now, not wishing to be biased by my own observations, which had given me a very opposite result, and to which I shall presently refer, and desiring to ascertain on what this commonly-received dogma, repeated by author after author, was based, I have searched in numerous publications in the hope of coming across some well-attested case of this erysipelatous inflammation of the brain or its membranes. But all in vain have long lists of hospital reports, of journals, and of monographs been examined. I find, indeed, cases in which local trouble about the bones of the head has been attended both by meningeal thickening and by erysipelatous inflammation of the scalp and face; I have found thrombosis of the sinuses alluded to rather than described; I find instances where extravasations of blood have taken place near the cranial bones, and there has been very considerable hyperæmia of the membranes;[1] but I have sought in vain for such a post-mortem record of meningitis or cerebritis, or even of thrombosis, as would fairly satisfy the requirements of modern pathology.

The opportunities just alluded to of instituting inquiry in cases of erysipelas with marked cerebral symptoms have shown me how very small is the amount of local lesion discernible. I have made, or been present at, autopsies in five thoroughly typical cases. Not in one was the least sign of inflammation to be discovered; some fulness of the vessels of the membranes, a kind of venous turgescence, yet not extreme, was found; but no lymph, no pus, no thickening, no patches, were encountered. The brain structure itself seemed normal, and in parts anaemic. There were no emboli in the minute vessels. Examined microscopically the brain structure was healthy, though it is fair to state that the microscopical inquiry was not made with the aid of processes just now employed in investigations of the nervous system, and with which, perhaps, different results might be obtained. I cannot help thinking that the nerve-cells would show some deviation, perhaps a granular change. But this is a matter for future research. To the naked eye, and the ordinary exploration with even high powers no alteration is discoverable.

I subjoin a case of cerebral erysipelas, if this questionable name may be applied to erysipelas with most decided cerebral symptoms, in which a minute examination of the brain and other viscera was made.

Case XIII. *Erysipelas of the Face with marked and persistent Delirium, finally Coma and Death: Autopsy: Microscopical Examination of Brain and other Organs.*—Edward P. J., 35 years of age, was admitted into the Men's Medical Ward of the Pennsylvania Hospital Feb. 23d, 1865, suffering from well-marked erysipelas of the face. He attributed the attack to a slight scratch on the side of his nose, which he noticed had felt very sore about five days previous to entering the ward, and the next day, the fourth before admission, his face began to swell, and in a short time his eyes were completely closed. He had two or three chills in the short time that elapsed before coming under treatment. He was feverish and restless at night, he had not eaten anything for four or five days, and stated that he had not slept in that time. The tongue was moist and not coated; his bowels were quite loose. The pulse was 120, and of moderate volume. He was directed to take twenty drops of the tincture of the chloride of iron every two hours, and mucilage of elm was applied to the inflamed surface.

The disease did not involve the hairy scalp, but the inflammation was of such high grade as to produce a hard swelling and vesication on the forehead, the exudation drying into brownish crusts, like eczema. During the next few days this vesicular and bullous eruption spread over the face and covered it with a mask. The eyes remained closed, and the disease extended slightly on the scalp. The tongue became decidedly dry, the gums were red, the fauces congested, and there was some difficulty of swallowing. There was no enlargement of the parotid glands. The throat was directed to be brushed daily with a 20-grain solution of nitrate of silver.

---

[1] As in the case of Almstrom, quoted in *Schmidt's Jahrbücher*, No. 11, 1876.

The sleepless and restless nights continued, and although he answered intelligently and had no marked delirium, it was noted on the 25th that he began to see strange objects. The pulse remained at 120, but was evidently losing strength and volume. He had been taking a small amount of wine since admission, which was now changed to four ounces of whiskey daily, in milk punch. He was also ordered two grains of quinia sulphate every two hours.

It was observed, Feb. 26th, that he had slept pretty well during the night; his throat was not so sore, and there was less difficulty in swallowing. He was brighter, and his diarrhœa was less annoying. It was reported that he had been "out of his head," talking and crying out in his sleep during the night. His pulse, in the morning, had fallen to 108, and at noon was 96; it was not tense, but perhaps rather fuller than the day before. The redness showed no further tendency to spread, but seemed to be diminishing. The site of the hard mass on the forehead was covered with gray bullæ, but the hardness itself had disappeared.

The next day his pulse was 112 and still feeble, although he had taken whiskey each hour during the night from twelve o'clock to six in the morning; the first sound of the heart was lacking in volume. His diarrhœa had improved, but his mind wandered constantly, and he was so restless that it was found necessary to tie him in bed. He coughed occasionally, but on examination no abnormal sounds could be heard in the chest and the lungs were clear on percussion. The urine showed a great increase in the urates and phosphates, the chlorides were present in about the usual proportion. Specific gravity 1026, reaction alkaline. A trace of albumen was present, but not enough to produce a precipitate by boiling. These characters were found to persist in several examinations made during the progress of the disease. except that the amount of albumen was sometimes slightly increased.

No exacerbation of the local manifestation of the disease took place, but, on the contrary, the face became less puffy and discoloured. The patient, however, continued very restless, and became violently delirious; talking all the time, and paying no attention when addressed.

On March 1st he was still unconscious, but was becoming stupid and dull, instead of restless as before. His pulse was 90 to 95, but still feeble. The swelling had so far diminished that he could open his eyes. His bowels were regular; opened every other day. The tongue was dry. Moist rales were detected in the chest. During the next few days the delirium became less demonstrative and noisy, and subsided into muttering, and finally into coma with stertorous respiration. March 5th his pulse was 132, he was still unconscious, and considerable muscular trembling was present. The subsultus increased, the pulse became fluttering, and he died, comatose, on March 8th, 1865; death being directly due to asthenia.

Autopsy.—Heart: Pale and flabby, but of normal size. Lungs: Congested posteriorly, and mottled; from the cut bronchial tubes muco-pus exuded; a small mass of old tubercle was found at the apex of the right lung. Spleen: Had a dull, leaden look; it was somewhat enlarged, though not to a great extent; structure was firm. Kidneys: Of about the normal size, slightly congested. Liver: Of normal size; section showed a pale yellow surface. Brain: Of normal consistence; venous trunks full; membranes congested, free from patches or irregularities; brain structure appeared normal; the ventricles contained no appreciably augmented amount of fluid.

Microscopic Examination.—Heart: Granular; transverse striæ in some places obliterated, in others present; the appearance of the fibres very much changed; marked granular degeneration. Liver: Most of the cells preserved their nuclei, but were mixed up with much granular debris; liver-cells, on the whole, very granular, in part fatty. Brain and Meninges: Examined in many parts, were normal in their structure. Kidneys: Capillaries distended with blood; the tubes were packed with swollen, granular epithelium, and frequently crystalline masses, believed to be urates, were observed.

On reviewing, then, the cause of the cerebral symptoms, we find them not owing to uræmia, not to high temperature, and not, even if we grant the possible occurrence, in the vast majority of instances, to meningitis. To what, then, is the delirium due? I think it is, like the delirium of fevers, produced either by the changed blood and disturbed circulation and brain nutrition, perhaps by the direct effect of the poison on the nervous system, or by both causes concurring. Then, in idiopathic erysipelas, erysipelas of the face and scalp as it so commonly is, we have also a local cause acting. It is easy to see how the swelling and the altered state of the external circulation may give rise to both venous turgescence and want of supply of arterial blood in portions of the brain. In a therapeutical point of view, it is evident how important it is to understand the cause of the cerebral symptoms, to know at least that they are not due to inflammation. The treatment I pursue in most cases of erysipelas is, as may be readily gathered by the records in this paper, a local treatment with some mild demulcent, very often with infusion of slippery elm, while, internally, the tincture of iron with or without quinia is freely used, and in some instances the latter alone is resorted to. Now is it necessary to stop this treatment in cases with cerebral symptoms? It is not. I have had the best results by continuing it. I certainly advise quinia to be used. But I also generally resort to stimulants, give an occasional saline purge, and, remembering the state of the kidneys, see that the urinary secretion is freely kept up. Where the sleeplessness is very marked, opium or chloral may be employed.

Before dismissing the subject of the cerebral symptoms in erysipelas, let me mention a few points of purely clinical interest. One is, that the delirium may really be the outbreak of mania-à-potu, and appear at any time in the malady. It came on late in this case—

CASE XIV. *Facial Erysipelas in a Drunkard coming under Observation on the fifth day; Albuminuria ceasing five days later; Delirium Tremens during Convalescence from the Erysipelas.*—John K., 32 years of age, a labourer, was admitted into the hospital Feb. 19, 1874, and discharged as cured March 5, 1874. He had been sick with inflamed face for four or five days prior to entering the ward. He could give no particular cause for the disease, but he had evidently been drinking hard for some days. On admission, the left side of his face was puffy, red, and shining. and the upper eyelid was ecchymosed and completely closed. His temperature was 101°, and marked restlessness and fever were observed. The urine was albuminous. of spec. grav. 1024, and acid in reaction. Tincture of iron was directed to be given in twenty-drop doses every two hours, and local application of lead-water and laudanum was employed. Five days later no albumen existed in the urine, the red flush was less marked on the face, and he was able to open his eyes; but the next day, without any apparent exacerbation of the original illness, which was rapidly declining, he became violently delirious, requiring him to be strapped in bed and afterwards confined in a cell.

On Feb. 27 he was still nervous, but his mind was clear; he had greatly improved on quinia, bromide of potassium, and a small amount of whiskey. He now rapidly became convalescent. and had no further trouble. Some induration remained in spots on his forehead, but they did not suppurate.

Another feature I may mention about the delirium is, that it, in fact that all the cerebral symptoms, may be passing away, and the erysipelas break out in fresh directions, and lead by its local extension to fatal issue.

Case XV. *Erysipelas with Violent Delirium; Lightening of the Cerebral Symptoms; Erysipelas extending to the Larynx and Lungs: Death.*—Mr. L., age 54, seen with Dr. Heritage. The patient was a prominent politician. and a free liver. He had the most extensive erysipelas of the face, head, and neck, and the duskiest hue of surface I have met with. He was delirious almost from the onset of the malady—a violent, fierce delirium at times. The urine examined after he had been ill for three or four days was found to contain a moderate amount of albumen. The case lasted about ten days. For forty-eight hours prior to death the cerebral symptoms greatly improved, the mind was for the most part clear. But the erysipelas, while markedly lessening on the face and neck. began to travel down the throat. Great swelling of the fauces, subsequently oppression, short irritative cough, and loss of voice, happened. The tongue was dry, and rough. The patient was treated with iron, quinia, and freely stimulated. But he died from exhaustion, and the extension of the erysipelas downwards; for altered breath-sounds and rales showed that the lungs were becoming involved. Treatment to the throat by iron, as well as by nitrate of silver, was much interfered with by the local swelling; operative interference was clearly useless.

There are other internal affections we meet with in erysipelas which may be alluded to. Some are the direct result of the extension of the morbid process to the mucous membrane; in others the trouble originates within, or leads to remote complications. The *throat* is often attacked by a spreading of the inflammation; and it is common to find the palate and fauces, and even the tonsils, red and swollen, and occasioning difficulty in swallowing. Pharyngitis is very usual. and will be generally seen if looked for. At times the erysipelatous inflammation begins in the throat and works its way outwards; or starts in an old nasal catarrh, passes to the throat, and thence to the face. I have seen several instances of both of these forms of erysipelas. Further, it may happen that the throat is red and shining, and fluid collects in little bags, and that there is great difficulty in swallowing. The trouble is chiefly in the palate, half-arches, and posterior wall of the pharynx; the glands of the neck are but slightly or not at all swollen. The whole appearance is decidedly that of erysipelas, and the affection has been described as erysipelas of the fauces. Its tendency is to spread downwards, not to show itself on the face. Of course, in default of erysipelas appearing there, the diagnosis remains doubtful. I have seen at different times in consultation three cases of this throat trouble. I regret that the urine was not examined. From my present knowledge of its being so commonly albuminous in erysipelas, I suspect that it will be found so in cases of the kind, and that thus their nature may be ascertained.

In its progress downwards, erysipelas, starting on the face, may spread to the larynx, producing laryngitis and œdema of the glottis, and may pass on into the *lungs*. Several instances of the kind are recorded in this paper: (Cases IV., XV.; in Case XIII. there was a marked pulmonary complication, although the evidence that it was due to extension is not so clear.) Of true pneumonia thus arising I have never seen an example, though such cases have been described. The lesion I have met with is a bronchitis of the finer tubes with considerable pulmonary congestion. One instance of pleurisy, complicated with pericarditis (Case XVII.), has come under my observation.

Diarrhœa is an occasional symptom, and lesions of the solitary glands and of Peyer's patches, enteritis, especially duodenitis, intestinal hemorrhages and ulcers in the duodenum[1] have been recorded as *enteric complications* of idiopathic erysipelas. *Enlargement of the spleen* is stated by Friederich[2] to be an almost constant accompaniment of facial erysipelas, and often to reach such a degree that the organ projects from under the ribs. *Peritonitis* as an attendant upon erysipelas I met with in one instance. It occurred in a young man just recovering from facial erysipelas, and the tenderness, abdominal pain and distension were such as to leave no doubt in my mind of the nature of the trouble. The patient recovered; but recovered slowly.

That *pyæmia* and *metastatic abscesses* follow erysipelas is a common belief. I have not myself met with any cases, probably because my experience is derived from medical cases. And as regards less clearly defined conditions of blood poisoning, very likely many of the obscure symptoms of depression and ill health and general disorder that we observe after attacks in some persons may be due to impure blood. On this point, however, we cannot speculate with any certainty. We do not know enough of the condition of the blood in erysipelas. Virchow states that the fibrine is increased; Walter Moxon and Goodhart[3] confirm the opinion that there is an excess of white cells in the blood of erysipelas.

---

[1] Malherbe, Archiv. Gén., 1865.

[2] Klinische Vorträge, No. 75.

[3] Guy's Hospital Reports, vol. xx. 3d ser.

"In one case as many as sixty leucocytes in the field were found, the average being twenty-five;" Bristowe[1] writes "that in the early stages of the disease the blood contains an excess of fibrin and of white corpuscles, but subsequently tends to assume the characters commonly observed in the later stages of febrile disorders." Yet a good many of these observations were evidently made on the blood in surgical erysipelas, complicated, as this often is, with the history of all kinds of injuries and accidents, and we need further knowledge before we can attempt to draw fixed conclusions as to the blood and the result of its changes in idiopathic erysipelas.

One of the most important of the internal complications of erysipelas is found in the state of the *heart*. It consists in a granular degeneration, like that we observe in idiopathic fevers. The organ is flabby; the impulse is not well-marked; the first sound becomes defective, and is sometimes replaced by a short murmur; the second sound is distinct. In a number of the cases reported in this paper this state of the heart is mentioned, and the autopsy in several showed what the condition of the organ was. (See especially Case XIII.) To these I will add the following record, in which weakness of circulation and delirium, with great nervous prostration, were prominent features.

CASE XVI. *Erysipelas following a Scratch of the Face, ushered in by Chills; Eczematous Eruption; Faucitis; Diarrhœa; Delirium; Albuminuria; Autopsy showing Congestion of Internal Organs and Flabby Heart.*—Edward J., æt. 35, a native of Ireland, was admitted into the Hospital Feb. 23d, 1865. He acknowledged being intemperate in his habits, but had not been drinking to excess for some time. Erysipelas appeared three or four days before admission, the exciting cause, in his opinion, was a scratch he had received on his nose a few days previously. The inflammation rapidly spread over his face, but did not invade the scalp. Prior to admission he had two or three chills, followed by considerable febrile movement with great restlessness and insomnia, the bowels were very loose.

Upon admission his features were much swollen and both eyes were closed; scattered vesicles and bullæ were noticed here and there on the surface, and the exudation had dried in places forming scabs, presenting an appearance like eczema.

He was ordered tincture of iron every two hours, with a small amount of wine, and good nourishing diet. Mucilage of elm was applied to the face. To control the bowels a two-grain opium suppository was ordered to be given as occasion required.

Two days later the face was still red and swollen, and the disease appeared to be advancing on to the scalp. The eyes were still closed, and the features were covered by a brownish crust. The gums were red, the tongue was decidedly dry, the fauces appeared congested. There was difficulty of swallowing, but no enlargement of the parotid glands. During the night he had muttering delirium, yet slept well at intervals.

The urine was slightly alkaline and cloudy, of sp. gravity 1026; it contained a small amount of albumen, but no tube casts were found. The chlorides were present in about the normal proportion, the phosphates and urates were in excess.

---

[1] Theory and Practice of Medicine.

During the next week the patient improved apparently in some respects, the diarrhœa came under control, the face became less swollen, and there was no exacerbation of the disease. But he continued to be flighty, and became so restless that it was necessary to strap him to the bed. Opiates gave him some sleep, but did not improve the delirium. The pulse continued accelerated and feeble; the first sound was feeble; he had some cough, but no lung complication was detected. The stimulant was given in larger quantities.

On March 2d a slight increase of the albuminuria was observed, and on the 4th the swelling returned in his face; he now became very restless and delirious; and did not sleep during the night. During the next few days the patient fell into a condition of hebetude, and from this into coma with stertorous respiration, and died on the 8th of March; the illness being characterized throughout its course by weakness of the circulation and prostration of the nervous system quite disproportionate to the local disease.

Autopsy.—Heart was found pale and flabby; the walls did not seem as firm as normal, the cavities were of natural size. Lungs were congested and mottled. Spleen somewhat enlarged, although very slightly. The surface was of a dull leaden appearance; the proper structure was firm. Kidneys normal size, but congested. Liver of usual weight; pale yellow on section. Brain of normal consistence. Membranes congested. Venous trunks full. No evidence of inflammation. Brain structure normal.

Now the condition of the heart referred to is one that easily becomes complicated with a short mitral murmur due to functional disturbance of the valve, and which is the more readily produced on account of the altered condition of the blood. It is not difficult to understand how this state of things may be mistaken for endocarditis. This, I take it, is the explanation of the great frequency of endocarditis which Sevestre[1] supposes to happen in facial erysipelas, usually in a latent form, and of which he implies that it calls for the same care in examining the heart as is required in acute rheumatism, but also remarks that it generally disappears when the erysipelas is over. A similar statement is made by Jaccoud,[2] who, moreover, mentions that the first outbreak of the malady may show itself in the heart. Since reading the opinions of these distinguished clinicians, I have carefully examined the heart in every case of erysipelas that has come under my notice, and I have found simply the physical signs above mentioned, which coexist with a condition of muscular change in the organ with which I had long previously been familiar. Still I do not deny the occurrence of endocarditis and kindred alterations; I merely deny the frequency, and explain differently the signs by which the disease is supposed to be indicated. It cannot, I think, be gainsaid in the face of the statement of Sevestre that at the autopsy the lesions of endocarditis have, at times, been detected, attended with swelling of the valves and with degeneration of the myocardium; or, that he has occasionally known the lesion persist and be accompanied by grave disorder of the circulation. Nor can the possibility of its existence be questioned when Jaccoud tells us that he has seen an instance in which a man, dying on the ninth day of an idiopathic erysipelas, was found to have myocarditis, with a slight inflammation of the mitral valve. Pericarditis he also mentions as happening; and pericarditis, as this case proves, I have met with.

---

[1] Manifestations Cardiaques dans l'Erysipèle de la Face. Thèse de Paris, 1874.

[2] Leçons de Clinique Médicale faites a l'Hôpital Lariboisière, 1874.

Case XVII.—*Phlegmonous Erysipelas seen on the second day; the Urine containing Fibrinous and Granular Casts and Albumen; Attack of Pleuro-pericarditis; Discharged perfectly well.*—Robert O'R., æt. 22, labourer, admitted into the hospital December 31, 1868, having suffered for twenty-four hours with facial erysipelas, beginning on the right cheek. When he entered the ward there was a deep erysipelatous flush over the entire face, but the scalp had escaped. Considerable febrile disturbance existed. The urine was found to be orange-coloured, acid, sp. grav. 1025, and contained about one-fifth albumen. Chlorides were abundant. Microscopical characters: fibrinous and granular casts in great numbers were present, with some renal epithelial cells and leucocytes.

On the day after admission it was discovered that a small abscess was pointing on the right side of his neck, this was opened, and from that time the erysipelatous inflammation steadily decreased, disappearing entirely on January 8th. His treatment was by tincture of iron and quinia. Before convalescence had fairly set in the recovery was delayed by an attack of pericarditis, and of left-sided pleurisy with effusion. The pericardial friction was very marked. He had, however, entirely recovered from the trouble by Jan. 25th, when the urine being again examined was found to be pale yellow, alkaline, of sp. grav. 1019, with a small deposit of phosphates and some granular cells, but it contained neither albumen nor casts.

In bringing this paper to a conclusion, it seems scarcely necessary to point to the evidence afforded of idiopathic erysipelas being more than an inflammatory affection of the skin. Why are kidneys, liver, heart, lungs, and blood so markedly implicated if it be but a local disorder? That the disease may start in abrasions or slight injuries, as we know it often does, is not an argument against its general character. The poison, whatever it be, may find in the damaged part a nidus. Concerning the nature of the poison we are much in the dark. The fashionable bacteria have been summoned to explain it. But, without agitating this interminable question, I may state that if we can put observations on the internal lesions in surgical erysipelas side by side with those of the idiopathic malady and compare the results carefully, we shall have made a step in settling at least whether the poison in so-called medical erysipelas is similar or dissimilar to the erysipelas of wounds and injuries; and I venture to hope that this imperfect sketch of mine will be supplemented by one of those brilliant contributions to professional knowledge which hospital surgeons are now so constantly making.

ARTICLE II.

THOUGHTS RELATING TO THE PROGNOSIS AND TREATMENT OF DIPHTHERIA.

By J. LEWIS SMITH, M.D., Clinical Professor of Diseases of Children in Bellevue Hospital Medical College, New York.

THE occurrence of diphtheria in all sections of the country, and the heavy death-rate which attends it; its persistence as an endemic in certain localities, as New York, and its frequent epidemic outbreak in country villages and towns, over wide areas, have awakened unusual inquiry on the part of physicians in reference to its nature and proper treatment. And there is no disease which more urgently demands all the light which science and experience can bestow, for not only do physicians disagree in regard to the nature of diphtheria, and the mode of treating it, but they are more frequently deceived by the prognostic signs in diphtheria than in almost any other disease. This uncertainty of prognosis, of which even physicians of ample experience complain, is, no doubt, in great part due to the fact, that diphtheria terminates fatally in several distinct ways. Hence while the patient may be secure, as regards the more manifest and common conditions of danger, so as to justify a favourable prognosis in the opinion of the physician who attends him, the fatal result may suddenly occur from some unseen and unsuspected cause.

Death in diphtheria may result from—

1st. Diphtheritic blood-poisoning.

2d. Probably, also, from septic blood-poisoning produced by absorption from the under surface of the decomposing pseudo-membrane. But it is difficult to distinguish the constitutional effect of sepsis, from those produced by the diphtheritic poison. Septic poisoning is obviously most apt to occur in those cases in which the pseudo-membrane is extensive, and deeply imbedded, and its decomposition attended by an offensive effluvium. Cervical cellulitis, and adenitis, which when severe cause very considerable swelling of the neck, appear to be often, if not usually, due to septic absorption from the faucial surface, the inflammation extending from the absorbents to the glands and connective tissue. Considerable tumefaction of the neck therefore seldom occurs in diphtheria or scarlet fever, without manifest symptoms of toxæmia, and is to be regarded as a sign of its presence.

3d. Obstructive laryngitis.

4th. Uræmia.

5th. Sudden failure of the heart's action, either from the anæmia, and general feebleness, from granulo-fatty degeneration of the muscular fibres of the heart, which is liable to occur in all infectious diseases of a malignant type, or from ante-mortem heart clots.

6th. Suddenly developed passive congestion and œdema of the lungs, probably due to feebleness of the heart's action, or to paralysis of the respiratory muscles. I have known death to occur apparently from this cause during the period of supposed convalescence, and when the visits of the physician had been discontinued. Thus in a case in my practice, symptoms of œdema pulmonum (moist rales in both sides of the chest, and embarrassed breathing) suddenly occurred nearly one month after the disappearance of the faucial pseudo-membrane and inflammation. The urine, which had contained considerable albumen during the active period of the malady, had for some time shown no trace, or but slight trace of this principle by the proper tests. By active stimulation these symptoms entirely disappeared in a few hours, and the heart's action seemed normal, unless a little weakened. On the following day the same symptoms reappeared, and death occurred before I was able to reach the house.

That physician obviously is least apt to err in prognosis, who recognizes the fact that patients are liable to perish in any of these different ways, and carefully examines in reference to all the conditions which involve danger. Many physicians, as I have had the opportunity to observe, are remiss in not examining more frequently the urine of diphtheritic patients, for there is often a large amount of albumen in the urine in diphtheria, indicating a poisonous quantity of urea in the blood, and yet the appearance of the urine to the naked eye is probably normal.

Among the symptoms which render the prognosis unfavourable are, repugnance to food, vomiting, pallor of countenance, with progressive weakness and emaciation from the blood-poisoning; a large amount of albumen with casts in the urine, showing uræmia, to which the vomiting is sometimes, but not always, attributable; a free discharge from the nostrils, or occlusion of them by inflammatory thickening, and exudation, showing that a considerable portion of the Schneiderian membrane is involved, hemorrhage from the nostrils or fauces, and obstructed respiration. One, at least, of these symptoms has been present in most of the fatal cases which have fallen under my observation.

Treatment.—It is remarkable that there is so little agreement in the profession in regard to the medicinal treatment of diphtheria, since this disease has now been under almost constant observation during the last twenty years in the principal cities of this country, and many epidemics have been closely observed and reported by intelligent physicians in the rural districts. The wide discrepancy, which exists in reference to the proper therapeutic measures, receives partial explanation from the fact of a wide difference of opinion as to the nature of diphtheria and its mode of commencement, but is more due to the fact that statistics of its treatment afford very unreliable, and often conflicting data by which to determine the proper therapeutic measures. For scarcely any other disease presents such a diversity in type as diphtheria, from cases so mild, that nearly all recover, whatever the measures employed, to those so severe, that a large proportion die under the best possible treatment. And this difference in type may be observed in cases occurring at the same time in a great city like New York, or even in the cases, which two physicians, practising near each other, may be called upon to treat. Hence, one physician recommends with confidence a medicine or mode of treatment, as eminently successful in his hands, which another physician of equal experience speaks disparagingly of. The theory relating to diphtheria which, in my opinion, has of late years done the most harm, is that which attributes it to low vegetable organisms, visible under the microscope, which alight upon one of the exposed surfaces, usually the fauces, where they excite local inflammatory action, and if not promptly destroyed, are apt to penetrate the tissues, enter the blood, and establish a constitutional disease. Acceptance of this theory evidently led to the employment of parasiticide medicines, the so-called antiseptics, or anti-ferments, externally and internally, to arrest and destroy the vegetable growth, their local use sufficing, according to the theory, in the early stage, when these organisms had passed no farther than the surface, but their internal use being required in addition, if the malady had continued longer, and the disease had become general. Hence, in proportion as this doctrine came in vogue, carbolic acid, chlorine preparations, bromine, the sulphites, phenic acid, and, as the best representative of this class of medicines, and most powerful antiseptic, salicylic acid, attained at once prominence as the agents which would be most likely to cure diphtheria, by destroying the cause. A solution of bromine and bromide of potassium, having been used, with apparent good results, in the antiseptic surgery of the army during the late war, obtained under the influence of this theory some reputation in New York as a remedy for diphtheria employed externally and internally, and without the aid of other therapeutic agents. A certain number of drops are administered internally every hour, or second hour, properly diluted, and the same medicine undiluted, or with less dilution, is applied to the fauces with a brush at regular intervals.

But experience, if sufficiently extensive, is the safe guide in therapeutics, and, according to my observations, internal antiseptic measures have not seemed to exert any marked controlling effect on the course of diphtheria.

The following case may be cited as a common example. It shows how little salicylic acid, even aided by quinia and iron, controls the diphtheritic poison.

On May 6th, 1876, during my term of service in the New York Foundling Asylum, a boy aged 4 years took diphtheria. His temperature on the first day was 103°, and a pseudo-membrane had already appeared on each tonsil at the time of my first visit. A mixture of tinc. ferri chloridi with potas. chlorat. was given to him on the first hour, two grains of sulphate of quinia on the second hour, and three grains of salicylic acid, rendered soluble by borax, on the third hour. These medicines were thus administered night and day in alternation, while at regular intervals an antiseptic application was made to the fauces. The following is the subsequent history of this case, in which sixteen grains of quinia and twenty-four grains of salicylic acid were administered daily besides the potash and iron, with nutritious diet, and a moderate amount of alcoholic stimulants. 7th. Pulse 120, temp. 100°. 8th. Pulse and temperature same as yesterday; he has no cough and no discharge from the nostrils. 9th. Pulse 124, temp. 99½°; had this morning epistaxis; the pseudo-membrane covers the tonsils and extends a little upon the palate; no deposit of urates, no apparent excess of urea, no albumen in the urine; its specific gravity 121. 10th. Breathes heavily when asleep, from the swollen state of the fauces; pulse 140, temp. 100; had epistaxis once since yesterday; the urine contains a moderate amount of albumen, with hyaline casts, and sp. gr. 1018; no urea deposited by the nitric acid test.[1] On subsequent days the urine gradually became more scanty and albuminous, and the casts increased. On the 13th it is stated that not more than one ounce of urine had been passed in twelve hours. Vomiting with epistaxis occurred, the pulse fell to 96, the countenance presented an ashy pallor, and death occurred on the 14th.

At the autopsy several, probably a dozen, patches of extravasated blood were observed under the skin; there were numerous extravasations of blood in the internal organs, particularly in the lungs, and under the mucous surface of the stomach. There was uniform injection of the mucous membrane of the air passages. The heart seemed normal; the kidneys were removed for microscopic examination.

This case, which presented the ordinary history of fatal diphtheria, did not seem to be materially modified by the internal antiseptic treatment. It would apparently have done as well without it. It is but one case, though an average example, and I have not observed any other case in which the internal use of antiseptics seemed to produce a curative effect. My knowledge, however, of the bromine treatment is limited to the four children of one family, and to the effects of its use, which have been reported to me by others.

The theory that micrococci, or vegetable monads, are the specific principle of diphtheria, which suggests and justifies the antiseptic treatment, was promulgated to the profession by comparatively young men, who had seen less of diphtheria than many others, but had zealously used the microscope. Their opinion, based on microscopic examinations and experiments, plausible, because having the appearance of scientific exactness, was widely received. And since, according to this theory, diphtheria is at first localized at the point upon the surface, where the micrococci are received, this opinion, so far as it was accepted, evidently led to the early energetic treatment of the local ailment, and indifference as regards constitutional measures. It is interesting to observe how the profession have been led by theories to regard the local treatment of diphtheria as of prime importance, especially during the first stage of the malady. Twenty to thirty years ago, when Trousseau was making his observations on diphtheria, and his views had great weight with the profession in both continents, it was believed that those blood diseases, which were communicated by inoculation, were at first local, even after the specific inflammation had appeared at the point of inoculation. Syphilis, for example, could be cured, it was thought, by proper applications to the specific eruption, if made within a certain number of days, and before the poison had entered the blood. In the same way it was believed that diphtheria is commonly received by inoculation, as it confessedly sometimes is, and could be cured by early-applied local measures. Hence Trousseau recommended to attack the pseudo-membrane, with what he designates "savage energy." After a time it began to be believed that the acute infectious diseases are already constitutional, although contracted by inoculation, when the specific eruption or lesion has appeared upon the surface, and that therefore no local treatment can prevent blood contamination, since it is already present. Now when this opinion was received generally by the profession, and diphtheria began to be regarded as a constitutional malady in its inception, as much as scarlet fever or measles, the promulgation of the bacterian theory exerted a retrograde influence, so that it seemed for a time, as if the old mode of treatment of the age of Bretonneau and Trousseau, would be restored. At this time there appeared in our language the ponderous volumes of Ziemssen's Encyclopedia, containing the cream of German medical literature, and as German physicists are most patient and exhaustive investigators, these volumes occupied the centres of our private libraries, and were pointed out as the means, which would be likely to elevate the profession of this country to a higher standard of medical knowledge. The treatise on diphtheria contained in this encyclopedia, the longest and most minute of any in the English language, was eagerly sought for and read, and an immense amount of harm done. The writer of this treatise is fully committed to the bacterian theory, and the section relating to treatment begins thus: "In diphtheria we have to deal at first with an infection, which is localized, and afterwards with a general disease resulting from this, out of which may ultimately be developed still a later affection of various organs," and he discusses first the local treatment, as of paramount importance, and secondly, the general treatment. It was a great misfortune, that a treatise like that by Sanné had not appeared in place of the one published. But the mischief was done, the brush and inhalations were made the potent instrument of cure, and constitutional remedies held the second place, and were believed to be unnecessary, except when local treatment had failed to destroy the micrococci, and the second stage, or that of general infection had arrived. For a time this theory has had its influence on practice, but unpleasant experiences have taught, and are teaching physicians, that local measures, however early and perseveringly employed, do not protect the system from the diphtheritic poison, do not prevent the occurrence of unmistakable symptoms of general infection in all cases of a grave type. Whatever the theory, experience gradually establishes the fact, in the minds of all observing physicians, that constitutional treatment is of paramount importance in diphtheria, as it is in that other malady, which, in my opinion, is most nearly akin to it, namely, scarlet fever, except when the danger is located in the larynx.

---

[1] An equal quantity of strong nitric acid, and urine mixed in test-tube and allowed to stand twenty-four hours.

Since December, 1875, I have examined minutely, and preserved records of, 104 cases of primary diphtheria, occurring either in my private practice, or seen by me in consultation, besides observing cases, and witnessing autopsies in the New York Foundling Asylum, where diphtheria was endemic nearly two years. From these observations, as well as from what I have been able to learn from other physicians, I am persuaded that, in order to secure the best treatment, constitutional and local, of diphtheria, it is necessary that the physician should accept the following propositions:—

1st. The specific principle of diphtheria, in all probability, enters the blood, in ordinary cases, through the lungs; and after an incubative period, which varies from a few hours to seven or eight days, produces the symptoms which characterize the disease.

2d. Facts do not justify the belief that the system can be protected by antiseptic or preservative medicines administered internally. A quantity of this kind of medicine, introduced into the system, sufficient to preserve the blood and tissues from the action of the diphtheritic virus, would, there is every reason to think, be so large as to arrest molecular action, and therefore the functions of organs, and occasion death.

3d. There is no known antidote for diphtheria, in the sense in which quinia is an antidote for malarial diseases, and no more probability that such an antidote will be discovered than for scarlet fever or typhoid fever.

4th. Diphtheria, like erysipelas, has no fixed duration. It may cease in two or three days, or continue as many weeks; but the specific poison acts with more intensity in the commencement than subsequently, and its energy gradually abates. Hence, a diphtheritic inflammation, which arises in the beginning of diphtheria, as laryngitis, is more severe and dangerous than when the malady has continued a few days.

5th. The indication of treatment is to sustain the patient by the most nutritious diet, by tonics, and stimulants; and to employ other measures, general and local, as adjuvants, to meet special indications which may arise. The rules of treatment appropriate for scarlet fever, apply for the most part to diphtheria. Local treatment of the inflammations should be unirritating, and designed to prevent putrefactive changes, and septic poisoning. Irritating applications which produce pain lasting more than a few minutes, or which increase the area or degree of redness, are apt to do harm, and increase the extent and thickness of the pseudo-membrane.

General Treatment.—This may be conveniently considered under the three heads, food, stimulants and tonics. All physicians of experience recognize the importance of the use of the most nutritious and easily digested food, and the preservation of the appetite, for the safety of the patient requires that he should retain, as far as possible, his flesh and strength. Unless nutritious and easily digested food, given in sufficient quantities, and proper appetite preserved, there is, obviously, the danger of the fatal prostration which so frequently occurs suddenly and unexpectedly in severe cases. Beef tea, or the expressed juice of meat, milk with farinaceous food, etc., should be administered every two or three hours, or to the full extent, without overtaxing digestion. Failure of the appetite, and repugnance to food, are justly regarded as very unfavorable signs. One objection to the use of the brush, instead of spraying the fauces, with the atomizer, is that it is more apt to provoke vomiting, by which nutriment, that is so much required, is lost. In malignant cases of diphtheria, as in scarlet fever of a similar type, patients are sometimes allowed to slumber too long without nutriment. It is the slumber of toxæmia, and should be interrupted at stated times, in order to give the food.

Stimulants.—M. Sanné, in his elaborate treatise on diphtheria, says: "De tous les antiseptiques donnés a l'intérieur, l'alcool est de beaucoup le plus sûr. Plus l'infection est prononcée, plus il faut insister sur les composés alcooliques." He states that Bricheteau reports the history of a patient, who took daily, during the diphtheria, a bottle and a half of the wine of Bordeaux, without the least symptom of intoxication or headache. A somewhat similar case was reported to me, in which nearly a bottle of brandy was given in less than twenty-four hours, without any ill effect, and an apparent good result on the general course of the disease. The same rule holds true in diphtheria as in other acute infectious maladies, that while mild cases do well without alcoholic stimulants, they are required in all cases of a severe type, and should be administered in large and frequent doses, whenever pallor and loss of appetite, or of strength and flesh, indicate danger from the diphtheritic or septic infection. It matters little how the stimulant is administered, whether milk-punch or wine-whey, provided that the proper quantity is employed. Were I to accept the theory that the cause of diphtheria is a vegetable organism, and were to search for a medicinal agent, employed internally, which would be most likely to destroy it, or retard its reproduction and development, I should accept the opinion of Sanné that the alcoholic preparations more nearly fulfil the indication, than any other agent.

Of the vegetable tonics, cinchona, or its important alkaloid principle, quinia, is more commonly employed than any other medicine, and there is probably none which answers the purpose better. The compound tincture of cinchona, and the fluid extract, have been used and recommended by physicians of experience; but quinia is more commonly employed, and is regarded by a large proportion of physicians as the most useful of all therapeutic agents in the treatment of this malady. But there is great difference of opinion in regard to the quantity which is required each day, or the size and frequency of the doses. It is sometimes administered in small doses, as one grain every three or four hours, for its supposed tonic effect; and again in doses sufficiently large to produce an antipyretic effect, as from twenty to forty grains per day. It is prescribed by some physicians in two or three large doses per diem, as ten or fifteen grains, and by others in small and frequent doses. That quinia does not exert any special or peculiar action in diphtheria, and is beneficial in the same way, and no farther than in other acute infectious diseases, is, I think, generally admitted by the profession; for large doses do not exert that controlling effect, which we would expect from a specific, as is shown by cases like the following, which are not infrequent, during severe epidemics:—

C——, aged four years, male, was examined by me in consultation, on February 10th, 1876. I learned that he had apparently contracted diphtheria from the escape of sewer-gas through a defective trap in the little room where he slept, and that the disease began after midday on February 6th, with fever. At 10 P. M. of the same day, when visited by the family physician, the temperature was 103°, and the fauces were red, but without any pseudo-membrane. Four grains of quinia were ordered to be given every two hours, and ten drops of the tincture of the chloride of iron, with two grains of the chlorate of potassa, to be given three times hourly. On the 7th the exudation covered both tonsils and the half arches; temperature $102\frac{1}{2}$°; evening, temperature 100°; pulse 128. 8th. Is playful; pulse 100; has slight swelling of the cervical glands; evening, some extension upward of the pseudo-membrane; has vomiting. 9th. Pulse 144; vomits often. 10th. At 3 P. M. began to grow worse; pharynx and nostrils covered with the exudation.

It was impossible, at the time of my visit, to obtain any of the patient's urine for examination, and death occurred a few hours afterwards from the toxæmia. Forty-eight grains of quinia daily, administered from the first day, had no appreciable effect in staying the fatal progress of the malady, had no such effect as would be likely to follow, were its action specific or antidotal. But there are two advantages from the quinia treatment, which explain the confidence reposed in it by the profession: 1st. It has an antipyretic effect in doses of from three to five, or more, grains. 2d. In moderate doses it is one of the most reliable tonics. But high febrile movement, requiring an antipyretic, I have seldom observed in diphtheria, except in the first forty-eight hours; and if, during this time, the febrile movement be such that an antipyretic is required, quinia in the larger doses is preferable, in my opinion, to any other remedy. In its subsequent use, namely, as a tonic, two grains may be administered every two to four hours. But other bitter mixtures, which have been found to be the most useful tonics in general practice, perhaps would meet the indication nearly or quite as well.

There is the same difference of opinion in regard to the use of iron, as to the use of quinia. Some prescribe the tincture of the chloride of iron, as the sole remedy in large and frequent doses, and others in smaller doses, as an adjuvant to the vegetable tonic.

The internal treatment which I have found most satisfactory for a child of five years is the following:—

R. Quiniæ sulphat. ʒss; elix. adjuvantis (Caswell and Hazard's), vel elix. tarax. comp. ℥ij. Misce. Give one teaspoonful every two to four hours; and hourly, between, one teaspoonful of the following:—

R. Tinc. ferri chloridi, ʒij; potas. chlorat. ʒij; syr. simpl. ℥iv. Misce.

The tonic effect of the iron is not impaired by the chlorate of potassa, which is added to the mixture, on account of its local action on the inflamed surface.

The citrate of iron and ammonia alone, or in combination with carbonate of ammonia, may be given in two grain doses, dissolved in simple syrup, in place of the above mixture, when the inflammation of the fauces has considerably abated or is moderate. If the patient improve, and the disease begins to abate, the intervals between the doses may be lengthened, but the tonics should not be entirely discontinued, until the patient is far advanced in recovery, on account of the dangerous sequelæ, which take their origin in an impoverished state of the blood.

Local Treatment.—It is important to keep in mind the purpose for which local measures should be employed, as stated above. It is to reduce the inflammation of the mucous surfaces, and destroy the diphtheritic poison, and contagious properties in the pseudo-membrane, and to destroy the septic poison, and prevent its absorption, if any forms. Forcible removal of the pseudo-membrane, irritating applications, the use of a sponge or other rough instrument, for making the applications, should be avoided as likely to do harm. The applications should be made either with a large camel's hair pencil, or, better for most of the mixtures employed, with the atomizer. The hand atomizer, like Delano's, which is cheap and of simple construction, while it carries a heavy spray from the curved tube, which is introduced over the tongue, is very useful, but the constant spray of the steam atomizer is more effectual, and is preferable in severe cases.

The following mixtures I am in the habit of using with the atomizer:—

1. R. Acid. salicylic. ʒss; glycerinæ, ℥ij; aq. calcis. ℥viij. Misce.
2. Acid. carbolic. gtt. xxxij: glycerinæ, ℥ij; aq. calcis. ℥vj. Misce.
3. Acid. carbolic. gtt. xxxij; potas. chlorat. ʒiij; glycerinæ, ℥iij; aquæ, ℥v. Misce.

Half a dozen to a dozen compressions of the bulb of the hand atomizer cover the surface of the throat more effectually with the liquid than can be done by several applications of the brush, and it is usually not dreaded by the patient. Diminution of size of the pseudo-membrane under the use of the spray is a favourable sign, but if it do not diminish, its presence can do little harm, provided that it is properly disinfected.

In many cases of diphtheritic inflammation of the fauces the spray suffices for local treatment, but the following mixture, applied by a large camel's hair pencil, is also very effectual, immediately converting the pseudo-membrane into an inert mass, and putting a stop to all movements of the bacteria which swarm in it, as I have observed under the microscope:—

℞. Acid. carbolic. gtt. viij; liq. ferri subsulphat. ʒij–iij; glycerinæ, ℥j. Misce.

This may be used two or three times daily, between the spraying, or oftener without the spraying. It is not irritating (such an effect would condemn it), but it is dreaded by most children, on account of the unpleasant "puckering," which it produces.

That form of diphtheritic inflammation which most imperatively requires local treatment, and in which local measures are of more importance than the constitutional, is obviously the laryngitis. Catarrhal laryngitis sometimes occurs in diphtheria, as I have had the opportunity to observe in the dead-house, without producing any marked symptoms, but the pseudo-membranous laryngitis of diphtheria is also common, and, as all know, is one of the most dangerous forms of disease.

Of the 104 cases of primary diphtheria, which I have alluded to above, as having been seen by me in family practice, since December 1, 1875, and notes of which I have preserved, in twenty-five the predominant inflammation was pseudo-membranous laryngitis. Cases in which there was some huskiness or hoarseness of voice, but no obstruction in the respiration, were not included in this number. Of these twenty-five cases, in which there seemed to be no reasonable doubt of the presence of a laryngeal pseudo-membrane, nine recovered, two by tracheotomy, and seven by the inhalation of the spray. Of the sixteen who died, upon two tracheotomy was performed, while the others were treated by the spray. It will be admitted, I think, that recovery of nine in twenty-five cases was an exceptionally good result, and was probably in part due to mildness in the type of diphtheria, during a portion of the time, in which these cases occurred, for if the type is severe the exudation is more abundant, and the exudative process continues longer. But those who observe carefully the effects of the spray (lime-water being used in the atomizer, as the most powerful solvent which can be safely employed), must admit that it is the most effectual agent at our command, for treating this very fatal affection. The following cases may be cited as examples, showing what may be accomplished by the spray:—

L., æt. 9 months, began to have croupy cough on February 16th, 1877, but it was slight at first and attracted little attention. Gradually this symptom became worse, and on the 19th I was asked to see her. At this time both inspiration and expiration were noisy, the cough frequent and croupy, the temperature 101°, and the fauces red, but without any pseudo-membrane upon them. In addition to the internal treatment, the above No. 2 mixture was ordered to be used every half hour to every hour. On the 22d small patches of pseudo-membrane were observed upon the fauces, the noisy respiration and croupy cough remained with little change, and the same treatment was continued.

24th. Symptoms worse; temperature 103°; respiration still more embarrassed, and the sternum is depressed in each respiration. Evening, temperature 101°; respiration 40; pulse 136; urine scanty, none of which can be collected for examination. The steam atomizer is to-day substituted for the hand atomizer, and its constant use directed.

25th. No lividity of fingers or lips, but very great dyspnœa; struggles for breath at times, with a wild expression of the eyes; respiration 40; pulse 164; temperature 103°. On the evening of this day, it did seem that the child would die before morning, and I greatly regretted that tracheotomy had not been performed, and would then have prepared for it, except for the opposition of the family. The No. 1 mixture was now substituted for the No. 2, and used without intermission.

26th. Respiration 48, its character as before, but the mother states that the cough is somewhat looser; temperature 103½°. The membranous exudation has disappeared from the fauces. From this time there was gradual improvement, and in a few days the child was out of danger.

In the same month in which the above case occurred, diphtheritic laryngitis appeared in two other families in my practice, and the following histories of them will also show the probable good effects of the atomizer:—

B., æt. 13 months, began to be croupy on February 14. On the 16th, when visited by me, there were small isolated patches of pseudo-membrane upon the fauces, and the uvula was completely covered by this exudation. The cough was croupy, but the respiration was much easier than in the above case, and there was much less hoarseness of voice. The No. 2 mixture was used every half hour with Delano's hand atomizer, and the symptoms, which never showed any immediate danger, gradually abated.

B., a girl, æt. 4 years, living in the east side of the city, began to be hoarse on February 14, and on the 15th the dyspnœa became so urgent, that the attending physician performed tracheotomy. A cast two inches in length, circular, and evidently extending nearly to the bifurcation, was expectorated from the opening, after which the respiration was easier. Her temperature was constantly under 100°. A few days after the operation, symptoms of profound blood poisoning occurred. The urine was very albuminous, and it contained casts. The edges of the opening into the trachea became covered with the diphtheritic pellicle, and the characteristic offensive odour was observed. Her death occurred on February 22.

The second child, æt. 20 months, began to be hoarse on February 15. It was visited by myself with the attending physician on the 17th. Her temperature was 101°; her fauces were red, but with only small patches of exudation, and her respiration was embarrassed and noisy, so as to be heard in the adjoining room. We prescribed, in addition to sustaining remedies, the constant use of the No. 1 mixture through the steam atomizer. Some of the time two steam atomizers threw the spray upon the face of the child. It was obvious within a day or two, that the obstruction within the larynx had not increased, and with the constant use of the instruments night and day the inflammation gradually abated, and the life of the child was saved.

These cases indicate, in my opinion, the proper course of treatment in diphtheritic laryngitis, but while we accord to local measures the first place in the role of therapeutic agents for this form of inflammation, internal treatment should not, as a rule, be suspended. Even mild cases of diphtheritic laryngitis may end fatally by systemic infection after the obstruction in the larynx is removed as in the above case, in which trachéotomy was performed, although the temperature during the period of the dyspnœa had been constantly under 100°.

Unless in comparatively rare instances, there is only one other diphtheritic inflammation which requires especial treatment, namely, that affecting the Schneiderian membrane. This membrane, in sensitiveness and liability to irritation, is intermediate between the conjunctiva and buccal or faucial membrane, and, therefore, when inflamed it requires milder applications than such as are appropriate for the fauces. Applications suitable for the fauces, would, if thrown into the nostrils, be too painful, and might increase the inflammation. I know no better treatment of the nostrils, than to inject with a small syringe one to two teaspoonfuls of the following mixture every third or fourth hour. It should be used at the temperature of the body, with the head thrown back and the eyes covered with a cloth: Acid. carbolic. gtt. xxiv; glycerinæ, ℥ij; aquæ, ℥vj.

227 West 49th Street, New York City.

Article III.

Retinitis Apoplectica and Embolic Inflammations of the Retina.

By Henry D. Noyes, M.D., of New York.

That extravasation of blood should sometimes take place in the retina is not surprising in view of the delicacy of the memberane. Observation has shown that a variety of changes may occur in its vessels to favour their rupture. For instance, Pagenstecher (*Archiv für Ophthalmologie*, B. xvii., Abth. 2, S. 98, 1871) gives a figure of a network of capillaries, with irregular enlargements and projections, which belonged to a case of hemorrhagic glaucoma. Wedl, in his Pathological Anatomy of the Eye, depicts calcareous degeneration of the capillaries. Several writers have described aneurismal dilatations of the retinal vessels seen by the ophthalmoscope. (See Martin and Galezowsky.) Fatty degeneration of the vessels is a common occurrence in albuminuric retinitis. (See Nagel, Virchow.) With such organic alterations the friable vessels may burst under no more than the normal blood pressure.

Again, if there be a hemorrhagic diathesis, it may give rise to retinal extravasation, as well as to other forms of bleeding. A valuable observation of Heyman's seems to show that retinal hemorrhage was in his case (see *Archiv für Ophthal.*, Bd. viiii. 2, 173) dependent upon a small sarcoma and cyst situated in the third ventricle.

While all these causes, and some others yet unknown, inform us how bleeding into the retina may be accounted for, I do not think them adequate to explain the phenomena which belong to typical retinitis apoplectica. The symptoms which we have are as follows: The optic nerve may escape all lesion, or be involved to a slight, or to a most intense degree. It may be slightly hyperaemic, or swollen, or have a spot of ecchymosis, or it may be so deeply infiltrated and injected that its outlines are invisible. The tissue of the retina will be infiltrated by œdema, either as a whole or in regions. At various spots there will be patches of yellowish exudation, not numerous and not extensive. The conspicuous feature will be ecchymoses of the most various form and distribution, but apt to be in streaks or flecks of small size. Sometimes they will be spattered pretty uniformly over the whole surface; again there will be only a few over a limited space. They may lie along the vessels, or exist in open spaces. They may appear upon the larger or the smaller twigs, and sometimes there will be large patches. The vessels present usually a peculiar look; the arteries are not swollen or varicose, but of small size, and some branches are often empty. If a large twig happen to be empty, it will be readily noticed; but fine twigs are apt to be in this condition, and to be overlooked. A vessel may be collapsed over a greater or less extent; sometimes the whole of it, from the papilla to its distribution, is empty. Frequently a closed vessel will run into a hemorrhage. This condition of arteries is not invariable, but is frequent. The veins are always enlarged and dark, and apt to be tortuous. They are not empty.

The disease appears with some suddenness, and most frequently during sleep. If it occur during waking hours, the loss of sight is not absolutely instantaneous, but reaches its maximum in a few hours. I have known cases where the greatest mischief was not produced until after three days. There is commonly no pain, and no increase of tension. Perception of light remains, and the field may be more or less irregular. The patients are commonly beyond middle life. The disease almost exclusively belongs to the senile stage of life.

The explanation of the above-described lesions must be sought, it seems to me, on the theory that they are the consequence of minute and often multiple embolisms of the retinal arteries. This conviction has grown up in my mind since the publication of Cohnheim's *Untersuchungen über die Embolischen Processe*, Berlin, 1872. Another and recent perusal of this *brochure* has strengthened this opinion. I find the same view hesitatingly suggested by Leber in his article upon diseases of the retina in Graefe and Saemisch.

Among other authors, I find none who give it countenance, while Stelwag thinks retinitis apoplectica does not deserve a separate title as a form of inflammation.

Cohnheim's experiments were made upon the frog's tongue, into whose vessels he injected particles of wax, and observed under the microscope the changes which took place. The character of these changes was found to depend upon whether the vessel which became plugged received an anastomotic branch beyond the place of obstruction. If it did, the only result was to throw out of the current of circulation that portion of the plugged arteriole situated between the anastomotic twig and the branch next above the plug. If, however, the vessel suffering obstruction is what Cohnheim calls a terminal artery—that is, does not receive beyond the plug an anastomotic branch—the following events occur: Circulation beyond the obstacle is arrested both in the artery and in its capillaries: Soon, however, a to-and-fro motion appears in the stagnant blood, and the fluid soon backs up from the veins with the capillaries, and flows back to the plug. This occurrence is possible only in regions whose veins are not provided with valves. Soon red globules find their way by migration through the walls of the vessels; and less freely the white globules do the same. After a longer time the walls of the capillaries lose their tone and proper nutritive relation to the blood and the tissues; they permit a freer transudation, and finally they rupture. By the escape of plasma and hemorrhage all the elements and conditions of infarction are complete.

Let us also observe the condition of the vessel on the other or proximal side of the plug. Of course, the circulation is stopped up to the first branch above. Whether the blood shall remain within the unused portion of the vessel is uncertain. If the blood remain, it might perhaps be expected to coagulate; but in the frog this does not occur, and Cohnheim says it does not occur in human beings if the twig be very small. Whether or not the blood shall be retained behind the plug is explained by Cohnheim thus (*l. c.*, p. 12): If the stoppage of circulation be sudden and complete, the blood is apt to remain behind the plug unless there be given off just above it (on the proximal side) a branch of considerable size; the effect of this adjacent branch is to gradually draw off the blood until the embolized vessel shall be quite empty. The process is similar to aspiration or attraction. If, however, the obstruction has been partial, or accomplished slowly because the plug did not accurately fit the tube, or was gradually pushed forward into smaller space, the back pressure on the circulation would be felt more gradually, and reach as far as to the second or third preceding branch, and tend to divert the current more fully into the earlier vessels. They would adjust themselves to the new conditions, and accommodate the fluid which was finding entrance difficult into the affected vessel. Finally, as embolism became complete, the blood would readily escape into the preceding branches, and the plugged vessel be entirely drained of fluid on the proximal side of the embolus. It thus appears that if the plug lodge at a point somewhat remote from a lateral branch, and be caught suddenly, the blood is likely to remain in the tube between the plug and the preceding branch; under other conditions this part of the affected vessel will be empty. In some cases not only the vessel embolized will be empty, but one or more next preceding branches will also be collapsed; at least no red globules will appear, although the plasma may in part remain.

These details are to be excused, that we may understand how the above recognized facts fit into the phenomena of retinitis apoplectica. In the retinal lesions we have all the tissue-changes which are the consequence of embolism, viz., the œdema, the plaques of exudation, the hemorrhages. These conditions variously combined, and in varying degrees of intensity, if found in the spleen, or liver, or lungs, would be styled infarctions. The hemorrhages accompany the tissue-changes of inflammation, and may be said to be part and parcel of them. The situation of the hemorrhages, when not directly upon visible vessels, necessarily implies that it comes from rupture of the capillaries, and is explained by the effect of back-pressure of blood coming from the veins. The modification which the embolism produces in the capillary walls makes them less able to resist the pressure of the refluent blood, and makes it unnecessary to suppose the mechanical effect of the venous pressure to be considerable.

The above phenomena of infarction after embolism can only occur in tissues which contain terminal arterioles in Cohnheim's technical sense. Such a structure is the retina, as well as the lungs, liver, and spleen. Each artery supplies its own capillaries without communication with adjacent vessels. In other words, a given set of capillaries have but one arterial supply. Furthermore, the veins must not have valves, and this is true of the retina.

The next point in the argument, after having dwelt upon the infarction, is to attend to the singular fact, that so often in retinitis apoplectica do we find collapsed vessels, and so common is it also, to find the circulation in the blood-carrying arteries remarkably feeble. This observation was made very early in the use of the ophthalmoscope. It is set forth with emphasis by Liebreich in describing a case in the *Archiv f. Ophthal.*, Bd. i., Abth. 2, S. 347, 1855, and illustrated by a large and well-executed chromo-lithograph. That picture would serve as a text for my whole argument. Similar pictures are found in text-books. (See *Liebreich's Atlas*, Tab. viii. 1 and 3; Jaeger, Taf. xiv. 65; also *Perrin*, pl. 21, fig. 5.

How the combined facts of collapsed vessels and infarction can be explained except by embolism, I cannot understand. A simple inflammation, with accidental hemorrhages, would not give reduced arteries and collapsed branches, but rather turgid vessels bearing an increased current. If, however, embolism be assumed, the cause of the attenuated and empty arteries is understood in the hindrance which has befallen the circulation, and which extends its stagnating influence back to preceding branches, and sometimes as far as to the ophthalmic artery.

That infarction as well as embolism combine to cause the damage to sight, and that the blindness, though in a sense sudden, is often not complete at once, but advances for some hours or days, is understood readily; because by the first effect of embolism, the blood-supply of the retina over the affected region is cut off, and the damage becomes yet more intense and extended as symptoms of infarction advance and culminate.

If it should be demanded that the existence of the plugs should sometimes at least be demonstrated, it may be answered that this cannot often be expected, because they will be small, and will be concealed by the infarction. I have in some cases thought that I could discover them with the ophthalmoscope in the upright image.

An adequate source for minute embolisms it is very easy to suggest. The disease belongs to advanced life, and among these subjects atheromatous arteries are almost the rule. In fact, the association between retinitis apoplectica and cerebral apoplexy is notorious. So much akin are these affections that I think there is a tendency to pronounce a prognosis as respects the brain much more decisively than the facts justify. Besides the fragments detached from sclerosed vessels, we have particles from aneurismal or other clots, from the valves of the heart, etc. etc., which can provoke the symptoms described in the retina. So grave are they that the function of sight is always permanently impaired and may be destroyed. But a similar embolism in other tissues might not excite symptoms which could be recognized. In the eye the degree of mischief produced depends of course on the extent of retinal circulation which may be blockaded. The visible lesions disappear in from six weeks to three months, or perhaps longer.

My argument for the theory that retinitis apoplectica depends upon minute embolisms of the retinal arteries is ended, and I might leave the issue to the judgment of the court of medical opinion ; but I may make the subject more familiar by adducing some cases in illustration, and I may be expected to meet certain possible objections. To begin with objections : If retinitis apoplectica be due to embolisms, why in embolisms of the arteria centralis retinæ does not hemorrhage constantly occur? It very rarely occurs, yet hemorrhagic spots in the vicinity of the nerve have been described in cases where a partial embolism was diagnosticated. (See cases by Knapp, *Arch. f. Ophthal.*, B. xiv., Abth. 1, S. 214.)

That hemorrhage should not take place when the main trunk is occluded, is understood when one thinks that in this case the source for reflux engorgement of veins is far distant in the ophthalmic vein, and the blood is also hindered from backing up, by the swelling which takes place by transudation into the optic papilla simultaneously with that going on in the retina. Hence it is natural that in embolism of the central artery there should be great infiltration of the retina and optic nerve, but no ecchymoses.

To adduce supporting illustration, I will refer to cases recognized as embolisms of large subdivisions of the central retinal artery. One of the first was by Saemisch (see *Klinische Monatsblatter*, 1866, p. 36, with an illustration). The case was seen on the second day; and the vessel was, for a considerable extent, occluded; and the lower half of the retina was infiltrated, but there was no hemorrhage. Perhaps this is explained by noticing that the obstruction seems to lie near the optic nerve, and that there are no communicating branches.

Another case, also recent, is reported by Knapp (*Archiv für Ophthal. und Otol.*, vol. i. page 64), and exhibits occlusion, exudation, and hemorrhage. The picture is complete, and the reasoning urged in this case applies, I think, equally to retinitis apoplectica.

Cases similar to this have come under my own observation. For instance:—

Mrs. J. M., æt. 62, came to me in January, 1870. Has been subject to sick headache; has ceased to menstruate; three years ago had rheumatism; the heart enlarged; pulse hard and regular; is apt to have pain over the heart; has shortness of breath, especially in climbing stairs; subject to dizziness, especially if she stoops. About a month ago found on awaking in the morning that the left eye did not see well; had a severe headache the preceding night; the eye not painful, and exhibits no outward sign of trouble. Vision = $\frac{20}{50}$. The lower half of the visual field, with a somewhat irregular horizontal boundary, is defective. By ophthalmoscope I found the lens and vitreous clear, the eye emmetropic; at the macula the retina clear, but just above it is a mass of whitish exudation, and in the vicinity are numerous punctate hemorrhages; still higher up the retina becomes œdematous, and the vessels tortuous. In the lower part of the fundus the retina and its vessels are normal. The optic nerve is normal, and the vessels going downwards are healthy, but those going upwards are otherwise. From a point not far from the nerve three branches are empty and two are seen to be plugged up, and in one of them it seems possible to recognize the plug. All about this region are numerous extravasations. Beyond the mass of blood-stains a vessel runs out perfectly empty and thread-like, with blood-patches upon it and beside it. Another vessel with hemorrhagic spots suggests a bunch of currants.

In this case there could be no doubt of the diagnosis of embolism of the above-described branches, and the identity of the symptoms with those of typical retinitis apoplectica seems to me unmistakable.

Five months later I again saw the patient. Vision remains $\frac{20}{50}$. Defect in field the same. Much, but not all, of the blood had been absorbed. The retina still hazy, and near the macula the exudation still visible. All the arteries proceeding upwards from the nerve are empty and reduced to fine threads, some of which are so small as to be scarcely detectable. The veins still to be seen, but of small size, and as they approach the nerve they become yet more reduced. The vessels on the lower side of the nerve are largely dilated, especially one of the veins.

I now adduce two cases which bear decided marks of having had embolic obstruction of large retinal branches, and which were seen a long time after the onset of the trouble.

J. M., sailor, æt. 49, came to me in January, 1876. Is a robust man, and is at sea most of the time. When in port, which may be for a month during the year, he drinks to excess; his quantum of whiskey being then, as he says, a quart daily. About eighteen months ago the sight of his right eye suddenly failed. I find O.D. V. = $\frac{20}{200}$, O.S. V. = $\frac{20}{30}$. By ophthalmoscope the right eye shows the optic nerve hazy, but of usual colour. The vessels normal, with the exception of the trunk going downwards. This bifurcates on the disk, and the division going downwards and outwards is obliterated. It is converted into a thin cord, and has specks of cholesterine glistening on its surface. A branch from this vessel is also shrivelled, and runs towards the macula lutea. Furthermore, a small branch given off from the vessel which passes out of the upper side of the nerve is obliterated, and its distribution is at the macula lutea. Upon the region of the macula there has been a hemorrhage or exudation, which has left atrophic changes. At a short distance, on the nasal side of the optic nerve, is a small speck of blood.

There is no attempt in the notes to show on what the retinal lesion depended; but the appearances were those of embolism and not of perivasculitis.

Another case is that of S. H., æt. 50, New Jersey, who came to the New York Eye and Ear Infirmary on June 22, 1877. He has had several attacks of rheumatism within fourteen years. On the 9th of April last had severe rheumatic pain in the right knee, and two days afterwards, when he awoke in the morning, he found the left eye much obscured. For a month he could not distinguish either light or colour. Gradually the sight improved, and now he counts fingers in the upper part of the field. Whether his loss of sight were really so complete as he says may be doubted. There were no other symptoms.

The heart shows signs of dilatation, but not of valvular disease nor of hypertrophy. The optic nerve is well defined, pallid, and in a state of white atrophy. The vessels of usual size and distribution, except those going upwards, which have almost disappeared. Both arteries and veins are reduced to threads. Alongside of one of these up-going remnants of vessels is an irregular granular mass, which looks like the vestige of an exudation or clot. It is decolourized, narrow, and about one and a half nerve diameters long. This mass and the shrunken vessels seem to me to point to the occurrence of embolism, while the signs of neuro-retinitis are the natural consequences of this condition. No other supposition seems to me capable of accounting for the appearances.

The following is a specimen case of retinitis apopletica, and introduced to illustrate the clinical history of the disease:—

Mr. S. C., farmer, æt. 65, New York, came to me on Dec. 3, 1871. He enjoyed good health except that for six years he had been obliged to pass water too frequently. There was nothing abnormal in the urine, and the trouble was probably assignable to the bladder. Is not dizzy, has no headache, no rheumatism, no heart disease. The pulse intermits once in seven or eight beats; the radials are atheromatous, and so are the carotids, the left being larger than the right. In the left eye loss of sight has been coming on gradually for two weeks. Daily growing worse, it has within three days been reduced to mere perception of light. The other eye is normal. V. = $\frac{20}{20}$.

The lesions seen in the left eye are intense congestion and swelling of the nerve, its edges and tissue hazy, so that the outline cannot be distinguished. The arteries are small, the veins large. All over the fundus are scattered a multitude of small hemorrhages, mingled with spots of exudation. The retina is oedematous, and there is a clot at the macula lutea. There are no large vessels ruptured, and the existence of collapsed vessels is not noted. Under pressure of the finger the arteries would pulsate and grow very small, yet not entirely disappear; at the same time the veins would quickly fade away, and the optic nerve become pallid.

At that time I gave a prognosis of the probability of cerebral apoplexy, which has not yet taken place, six years having passed. I had not yet read Cohnheim, and did not search for obliterated vessels, which I presume were present.

Two months later the appearances were about the same, and I heard from him after five years that the other eye remained good, while the diseased one was of almost no service.

It is an extremely rare thing to have an attack of this disease in both eyes; I do not remember an instance; but as to retinitis of the usual types, it is more frequent than not, to have both eyes affected. This one fact would tend to take the affection out of the class of primitive inflammations. In fact it is classed among simple hemorrhages, and the inflammatory features are regarded as accidental. I cannot see how they can be so considered. Of course there may be cases of a mixed type, but I desire to call attention to minute embolisms as being the cause of retinitis apoplectica.

The scope of this paper does not constrain me to discuss the question whether sudden loss of sight may not also depend on other causes than embolism, such as diseased conditions of the choroidal and retinal vessels. Attention was called to this matter in a paper by Dr. Loring in a previous number of this Journal. (See *Am. Journal of Med. Sciences*, April, 1874, p. 313.) Dr. L. does not allude to retinitis apoplectica, and the cases he presents do not fulfil the conditions of embolism, unless his Case No. III. be possibly an exception. The cases he cites exhibit the signs of great exudation and sudden loss of sight; no hemorrages and no occlusion of vessels. This does not realize the picture of embolism in the vessels of the retina, nor is it probable in the choroid.

Again, hemorrhage with little or no exudation and no occlusion of vessels, is certainly not to be considered as embolic. On the other hand, the mixture of hemorrhages with retinal exudation, and in many instances accompanied by occlusion of vessels, seems to me to presuppose embolism.

Article IV.

Observations on Choked Disk following Injuries to the Head in Children, with Cases. By Charles S. Bull, M.D., Surgeon to the N. Y. Eye Infirmary and to Charity Hospital.

Instances of recovery from meningitis following injuries of the head are sufficiently uncommon to make four cases of this affection, occurring in children, prove of some interest. It is a surgical axiom that all injuries of the head may lead to meningitis sooner or later, and in cases of injury terminating fatally, as the large majority of such cases do, the autopsy frequently enables us to trace the course of the inflammation from the seat of injury, the scalp, through the dura mater to the arachnoid and pia mater, and thence to the brain substance. But this, I am inclined to think, is unusual, unless the bones of the skull are affected. If the disease commences in the dura mater, the inflammatory action is usually limited to that portion of the membrane in the neighbourhood of the injury, though inflammation of the dura with an effusion between it and the bone, without implication of its under surface, is very rare. If the whole thickness of the dura becomes involved, then the arachnoid and pia mater are attacked, and the inflammatory action extends rapidly in every direction. When an exudation takes place into the cavity of the arachnoid, it does not always extend, according to the statements of authorities upon the subject, beyond the upper and lateral surfaces of the brain; that is, it is not common to find any effusion at the base of the skull. Even when the pia mater is involved on the convexity, the exudation does not usually extend as far as the base of the brain, though we do sometimes meet with it here. This seems to be what is met with in autopsies of cases of meningeal inflammation arising from injuries to the head. According to Hutchinson, arachnitis with exudation into the cavity of the membrane is distinct from that variety of meningitis where the effusion takes place into the subarachnoid spaces. He thinks the two forms occur in connection with different causes and rarely complicate each other. According to him, inflammation of the pia generally begins at the base, and inflammation of the arachnoid on the convexity. The former usually results from laceration of a nerve, and the latter from lesion of the bone and dura mater. Hutchinson also affirms that in inflammation of the subarachnoid spaces we almost invariably have a fracture at the base of the skull, implicating one of the nerve canals; and that along the trunk of the latter, external to the true arachnoid cavity, the inflammation travels up to the subarachnoid spaces. Here inflammation often involves the neurilemma of nerves and gives rise to neuritis. In these cases the fixed dilated pupils may possibly be due to an inflammation about the roots of the third nerve as well as to optic neuritis. It is a well-known fact that fixed and dilated pupils are common in the more chronic cases of optic neuritis met with in connection with brain disease, though they are not always seen here.

According to other authorities, in the majority of cases of traumatic meningitis, the exudation, whether serous, fibrinous, or purulent, is found in the cavity of the arachnoid when the bone is injured; but that where the bone is not injured the effusion is usually upon the surface of the arachnoid. These statements would seem to recognize two kinds of traumatic meningitis; the one starting from a fractured or diseased bone and accompanied by exudation into the arachnoid cavity, the other starting from the brain as the result of concussion and accompanied by exudation upon and in the meshes of the pia mater. The view taken by Hutchinson seems the more reasonable of the two.

The question of diagnosis between the two forms of meningitis seems to me a matter of considerable doubt. Unless the presence of diseased bone could be demonstrated through the scalp wound it is scarcely probable that in a given case we could decide, from a study of the symptoms, whether the inflammatory action started from the bone and dura mater or from the brain and pia mater as the direct result of concussion. Almost all cases of serious lesions of the head manifest signs of concussion more or less plainly marked, though it is true that the reactionary inflammatory symptoms of concussion usually show themselves within a very short period after the injury.

When these cases terminate favourably, the exudation is probably changed into fibrous tissue, the pia mater becomes much denser in structure and adheres to the visceral layer of the arachnoid and to the brain substance. From some of the resulting symptoms or effects we conclude that considerable effusion of lymph has taken place at the base and across the longitudinal fissure, and is most abundant near the pons and about the optic nerves or chiasm. It is well known that a meningitis, either primarily or coincidentally with some other central lesion, is very frequently the cause of neuro-retinitis. Of course, basilar meningitis, with an exudation around or upon the optic nerves, chiasm, or tracts, is the most important intracranial cause; but it should be remembered that meningitis of the convexity of the hemispheres may also give rise to optic neuritis. *Berthold* thinks that according to the intensity of the extended inflammation and the consequent exudation into the lymph spaces of the eye, we have either a filling of Tenon's capsule and chemosis of the conjunctiva or a filling of the subvaginal nerve space, with choked disk or optic neuritis. Whatever may be said of the latter view it is about certain that conjunctival chemosis has no *direct* connection with intracranial inflammation of any form.

It has been asserted that inflammation of the brain substance and of the meninges present different symptoms when occurring at the base of the brain or on its convexity, and that it is possible to distinguish meningitis of the base from that of the convexity, chiefly from the influence which the diseased meninges exert on the functions of the parts beneath, such as the organs of special sense. But the irregularity in order of occurrence of the functional disorders, as well as their inconstancy, makes it very difficult at times to estimate the actual value of these symptoms, individually or collectively, as indicative of some localized brain trouble. We know that, leaving acute meningitis out of the question, chronic or subacute meningitis may occur a few days after the infliction of the injury, or not until months have elapsed, and the patient has apparently entirely recovered. Still even in cases where its appearance has been so long postponed, if we examine the patients carefully, some impairment of function, such as deafness, o: amblyopia, or loss of some mental function, may generally be detected. An accurate, minute study of cases of injury to the head always yields some practical results. There are always at least three points to settle, as far as may be, in these cases: 1st. The situation of the lesion. 2d. What the lesion is. 3d. What effect has been produced upon the anatomical condition of the part itself and its immediate surroundings. It must be considered that in all cases of injury to the head there is more or less severe concussion of the brain substance, which is an important factor in the prognosis, for it is by no means uncommonly the real cause of death.

The subject of the ophthalmoscopic evidences of intracranial lesions and their value as aids in localizing the disease is still unsettled, and cannot be discussed satisfactorily within the limits of a short paper. It is doubtful whether any of the so-called ophthalmoscopic signs of intracranial inflammation are of much value as showing the *assured* presence of such inflammation, or the predominance of inflammatory action over obstructive changes. It is still uncertain whether we can always make a reliable differential diagnosis between the several conditions which may exist singly or in combination. Choked disk without impairment of vision may lead to atrophy of the optic nerves and total blindness. A choked disk may present very different appearances at different times, or at the same time in the two eyes, owing to conditions which exist entirely independent of brain disease. Moreover, it may not be the symptom of any intracranial disorder, but may be due to some affection of the optic nerve within the orbit, or even of the disk itself; and if we once admit this, of course the presence of choked disk ceases to be of any importance as an aid in localizing an intracranial lesion.

Case I.—Terence B., æt. 6; first seen October 12, 1874. Three months before he had received a severe blow on right temple, from which hemorrhage was profuse, but child did not lose consciousness, and was able to walk into house. One week later he fell from a wagon, and struck on same region of head. October 8th, mother first noticed that child could not see well. For four weeks after second accident child complained almost constantly of headache, and would frequently cry out at night. Since then has not complained much, but has appeared stupid and heavy. Vision has failed very rapidly during past week. Pupils moderately dilated and immovable. No strabismus. Typical example of choked-disk in both eyes; enormous swelling of optic papillæ, and distension of veins, but no retinal hemorrhages. Peculiar yellow, glistening exudation in region of macula in both eyes, and masses of exudation between macula and disk. No perception of light. Child complains of nothing except blindness, but passes large quantities of dark-coloured, offensive urine, which, on examination, is found filled with phosphates and amorphous urates. Heart and lungs normal. Child very quiet and stupid, with constant tendency to somnolence. Any treatment was probably useless, but an attempt was made to improve the vision by local bleedings, blisters to temple and behind the ear, and large doses of potass. iodid., but all proved of no avail.

In this case it is not possible to say whether the first or second injury gave rise to the brain trouble. The affection was without doubt a meningitis, probably at first of the convexity of the right cerebral hemisphere; but subsequently spreading, and possibly reaching the base, involving the optic chiasm, or the optic nerves in front of it. The exudation was probably not very extensive, since there was no paralysis of any other cranial nerves. The severe pain in the head, the screaming, and the later stupidity and tendency to sleep suggest meningitis as the most probable cause. Yet the little patient was never ill enough to be confined to his bed, and most of the time was moving about the room. The physician in attendance evidently suspected nothing of a serious nature, and the progress of the inflammation must have been insidious and of the subacute type, for the mother only noticed that the child could not see four days before I saw him. No ophthalmoscopic examination had been previously made. It is not probable that we can look to the concussion of the brain as the cause of the choked disk, unless indirectly through its setting up inflammation in the pia mater and arachnoid, which, in this case, is improbable. The choked disk was the result of compression by exudation, direct or indirect, and will end in atrophy of the optic nerve fibres. There is probably also some interstitial neuritis going on in all cases of choked disk, which may also aid in the atrophic process. The yellowish exudation in the macula lutea, though resembling that seen in cases of retinitis accompanying Bright's disease, is now regarded as by no means pathognomonic, as it is met with occasionally where no renal trouble exists. The child's health is perfectly restored. The obstructive and atrophic process in the optic nerves had evidently existed for some time before any failure of vision was noticed by the mother. The amblyopia may have begun very early after the accident, for slight degrees of choked disk or neuritis are often overlooked, owing to the disturbed sensorium of the patient. In view of the yellowish exudation in the region of the macula, suspicions were excited of a possible latent kidney affection; but though the urine was carefully examined at intervals of three or four days for a period of about four months, both chemically and microscopically, nothing abnormal was ever found. Moreover, the child is still under observation, and has never developed any other signs of renal disease.

CASE II.—John L., æt. 9; admitted to the New York Eye Infirmary August 28, 1876. Nine months before, the child had a heavy fall down stairs, struck on his head upon a stone pavement, but did not lose consciousness. There was a long, ragged cut over the occiput through the scalp, from which the hemorrhage was profuse. Four days later he began to complain of headache, which rapidly became very severe; vertigo ensued, followed by nausea and vomiting, and a high fever. The child did not, however, at any time, take to his bed, though at times he would scream loudly from the pain in his head. There were never any convulsions or signs of paralysis. The headache and other head symptoms gradually subsided, and the boy was apparently well until about three months after the accident, when he complained to his mother that the sight of the *left* eye was failing. No physician was called in, and the vision gradually faded away until the eye was perfectly blind. About two months before I saw him the vision in the *right* eye began to fail, and has steadily grown worse. The child is a bright, active, well-nourished lad. Both pupils are moderately dilated, but the left one is absolutely immovable. L. E., V. = 0: total amaurosis. R. E., V. = $\frac{10}{200}$. The ophthalmoscope showed in the L. E. a brilliant white optic papilla, with very small arteries. In the R. E. there were all the signs of choked disk, with a most remarkable development of vessels upon the disk and retina, simulating in appearance an aneurism by anastomosis.

Here was probably a basilar meningitis set up by the injury, though of limited extent, as no cranial nerves were involved, save the optic. The process must have been subacute and slow, for it was not till three months after the accident that the child complained of failing vision in the *left* eye. The explanation of this is probably as follows: There was an exudation poured out over the course of the optic nerves or chiasm, which subsequently became organized and slowly underwent contraction. As contraction went on compression was exerted upon first the left optic nerve, interfering with the circulation and giving rise to choked disk, and the compression continuing, it resulted in the brilliant white atrophy which I saw at the boy's first visit. At a much later period vision began to fail in the right eye, showing that the exudation was still undergoing contraction and compression was being exerted upon the right optic nerve. Moreover this process was a very slow one, for two months after vision had begun to fail in this eye, there were all the signs of choked disk present.

Here was another case where the child was deemed so little ill that no physician was considered necessary, and it is probable that no interference could have prevented the subsequent atrophy of the optic nerves. As there was still some vision in the right eye, an attempt was made to preserve it, though with very little hope. Six leeches were applied to the temple, and this was repeated every fourth day for three weeks. Large doses of potass. iodid. were given, reaching as high as two drachms daily for several weeks. Blisters to the temple, and back of the neck were frequently used; but in spite of all, vision gradually faded out, and in less than a month after I saw him the atrophic process was well established in this nerve also.

Case III.—Mary E. S., æt. 8; admitted to the New York Eye Infirmary June 3, 1876. The child was perfectly well up to four years of age, when she received a violent blow on the back from a fall, since which time she has never walked. Just before Christmas, 1875, she fell down stairs some distance and struck on her head. She was picked up unconscious, but there was no external wound. She regained consciousness shortly, but two days later symptoms of meningitis showed themselves, marked by great pain in the head, vomiting, loud screaming, and frequent convulsions. The child was dangerously ill for three weeks, and has never fully recovered. She still complains of great pain over the occiput. Six weeks before I saw her the mother noticed that the child could not see, and now thinks that she is entirely blind. During the last two weeks deafness has appeared.

At present there seems to be an entire arrest of development of the whole body. The patient is no larger than a child of four years of age. There is complete paralysis of the lower extremities, caries of the lower dorsal and upper lumbar regions of the vertebræ, and general emaciation. Both pupils are widely dilated and immovable, the media clear, but both optic papillæ are very much swollen, a mass of exudation, and the disks undergoing atrophic degeneration. Total amaurosis, marked deafness, but no paresis of any of the ocular muscles.

Whether the meningeal inflammation in this case started from the convexity or the base cannot be determined, though from the delirium and convulsions forming so prominent features it may have arisen on the surface. Still, as the auditory nerves were evidently involved, some exudation at the base is highly probable independently of the condition of the optic disks.

Case IV.—Mary D., æt. 4; admitted to the New York Eye Infirmary September 14, 1876. About two months before admission the child, while playing upon the stairs, fell over the railing to the hall below, a distance of about eight feet, and struck upon her head. The child was stunned, but soon recovered and began to scream. There was a ragged, irregular scalp wound over the right frontal protuberance about an inch long, which bled profusely. The child gradually became quiet, and cold applications to the scalp controlled the hemorrhage. Next day she was playing about as usual, was apparently perfectly well, and the mother noticed nothing wrong until about five weeks after the accident. The child then began to grow stupid, showed a constant tendency to sleep, vomited her food, and staggered when she walked. She occasionally complained of headache, and had considerable fever, but was never sick enough to go to bed, and no physician was called in. The child was cross, but was never delirious or made any noise. About a week before I saw her the mother thought the child's eyesight was affected, because she ran against the furniture in the room.

On admission the child looked perfectly well in body, answered questions readily; was evidently a bright child, but with a peculiar stare in the eyes. The pupils were moderately and equally dilated and freely movable. Media perfectly clear. In right eye pronounced white atrophy of optic disk, arteries very much reduced in calibre, broad shallow excavation, and no signs of any preceding inflammation of nerve or retina. In left eye still some traces of choked disk, the papilla being still swollen below and the vessels engorged and tortuous, but the upper portion of the disk the seat of progressive atrophy. Absolute amaurosis of both eyes—not the faintest perception of light. The scar on the forehead was still visible, but was not sensitive on pressure, and will, probably, entirely disappear. The urine was examined, and gave sp. gr. 1020, acid reaction, and deposited abundant phosphates.

Large doses of potass. iodid. were given to this child for a period of three weeks, and a daily hypodermic injection of strychnia nitr. commencing with gr. $\frac{1}{120}$ and increasing the dose to gr. $\frac{1}{60}$, but with absolutely no effect upon the vision. On October 10, the patient was suddenly taken with high fever, violent headache, and screaming, but there was no vomiting or diarrhœa. The fever and headache lasted four days, and then the child as suddenly recovered.

47 EAST 23D STREET, N. Y.

ARTICLE V.[1]

ON THE FUNCTIONS OF THE CEREBRAL LOBES. BY B. F. LAUTENBACH, M.D., Demonstrator of Physiology in the University of Pennsylvania.

THE extirpation of the lobes of the cerebrum is a comparatively easy operation which in previous times has been made by Flourens,[2] Magendie,[3] Hertwig,[4] Longet,[5] Schiff,[6] and others. These older investigators arrived at the conclusion, that, following this operation, the movements are either not affected or only evanescently weakened. The functions depending on the volition and perception are completely abolished. Flourens found that pigeons with both hemispheres removed no longer fear fire. The irritation produced by pinching, pricking, or even burning the operated animal, causes it to be agitated slightly. If the irritant, however, be a second time brought towards the animal it fears it not, and makes no effort to escape from it. These animals have evidently lost their power to memorize the impressions received. The author has frequently observed that cats, in whom the cerebral lobes had been removed, no longer manifest the usual signs of fear and of extreme agitation when a dog approached them. Flourens concludes that memory, vision, audition, and volition, disappear with the removal of the hemispheres.

Schiff believed that the extirpation of the peripheral brain-substance only prevents the occurrence of those movements which proceed from excitation of the higher senses.

---

[1] This paper was read before the Alumni Association of the Auxiliary Department of the University of Pennsylvania.

[2] Fonctions du Système Nerveux, Paris, 1842, pp. 31–37.

[3] Leçons s. l. Fonct. d. Syst. Nerv., Paris, 1839.

[4] Exper. de effect. lesion. in partibus Encephali, Berol., 1826.

[5] Traité de Physiologie, tome 2, part 2.

[6] Lehrb. d. Muskel u. Nerveuphysiologie, Lahr. 1859.

Birds bear the extirpation of the hemispheres very well, and frequently live for months thereafter. Bischoff[1] gives an account of a male pigeon in whom the whole of the hemispheres, excepting a small portion near the olfactory lobes, had been removed twenty months previously. Movements and flight without known external cause still occurred. Irritations produced reflex movements. The animal had to be fed and forced to swallow. In the course of time the pigeon learned to pass by obstacles instead of running against them, as is usually the case in the animals thus operated upon. It never could be frightened, nor could it ever be sexually excited. Mammals, and especially those animals in whom the operation had been very successful, frequently die in some hours, owing to their recklessly rapid and strong movements causing them to come in contact with hard objects, so that the bleeding, which had ceased, commences again. The blood pressing on the base of the brain produces paralysis of the respiratory centres, and, consequently, death.

In carrying our researches further into the history of the investigations on the functions of the cerebral lobes, we find that, in 1866, Simonoff[2] saw marked evanescent diminution in the sensibility of animals in whom he had stuck needles into the anterior lobes of the brain.

We now come to the more recent and more successful investigations on this subject. Why the previous investigators failed to observe the phenomena described by their successors was probably due to the circumstance that the older authors never really extirpated the whole of the hemispheres, but usually left the lower and anterior portions intact. The latter, it is now stated, is of great importance in the production of movements.

In 1870, Fritsch and Hitzig[3] published a paper on the electrical excitability of the hemispheres. These experimenters carefully removed the convexity of the calvareum without implicating the venous sinuses, which are so readily injured in all operations on the brain. The cortical substance was now galvanically and faradaically irritated. Irritation of the posterior portion of the cortical substance had no apparent effect, while irritation of certain portions of the anterior lobes produced movements in various groups of muscles in the opposite extremities. This so-called "irritable zone" is largely included in the lobi præ- and post-frontales. The extirpation of these "centres" produced an uncertainty in the movements of the extremities of the side opposite to that on which the extirpation had been made. "A slipping away of these limbs occurred without any demonstrable effect on the sensations of the part." It seemed as if the knowledge of the existence of the involved limbs had diminished.

---

[1] Sitzungsber. d. k. Akad. in München., 1863, pp. 479 and 569.

[2] Simonoff, Arch. f. Anat. u. Phys., 1866, pp. 545.

[3] Arch. f. Anat. u. Phys., 1870, p. 300; 1871, p. 771; 1873, p. 397. Hitzig, Unters. ueb. d. Gehirn., Berlin, 1874. Centralbl. f. d. Med. Wissenschaften, 1874, p. 548. Arch. f. Anat. u. Phys., 1875, p. 428.

Ferrier,[1] in 1873, published a paper in which he makes use of the discovery of Fritsch and Hitzig, giving no credit, however, to these investigators. His results corresponded in many respects to those obtained by the German experimenters. To this author belongs the credit of popularizing the doctrine of the irritability of the cortical brain-substance. His experiments on monkeys are especially interesting, as he obtained results analogous to those obtained in the lower animals.

By far the most important paper which has thus far been published on this subject is that of Schiff;[2] which seems, owing to its having been published in Italian, to be almost unknown. This author made more than a thousand experiments on the motor functions of the hemispheres, and came to the conclusion that the phenomena following irritation of the Hitzig "centres" are *reflex*, and that the irritated portions of the cortical substance are *centres of sensibility*, for the following reasons:—

"1. The movements resulting from the irritation are prevented by profound etherization, and also by placing the animal under the influence of morphia.

"2. The movements do not occur when the animal is placed in a state of apnœa.

"3. Tetanical irritation of these centres does not produce tetanus in the muscles.

"4. The induction current has less effect than the galvanic current—the opposite being the law for the motor nerve fibres.

"5. The latent time, *i. e.*, the time which expires from the moment of the irritation to the commencement of the contractions of the muscles, is proportionately from seven to eleven times greater following the irritation of the hemispheres than when the sciatic nerve is irritated.

"6. The results of the extirpation of these centres are those of interference with the sensibility."

Eckhard[3] found that when the gray substance of the hemispheres was removed at the "irritable zone," and the white substance beneath irritated, the same result was obtained as if the gray matter was irritated. Burdon-Sanderson[4] says that irritation of the corpus striatum, after the peripheral ganglia had been removed, still produced movements in the muscles. Gliky,[5] however, found irritation of the corpus striatum not to produce movements, but these follow irritation of the fibres which pass around this ganglion, which fibres can be traced into the pes pedunculus.

Carville and Duret[6] say that "extirpation of the nucleus caudatus produces stiffness in the opposite extremity; but when in addition the peripheral centres for this extremity are extirpated, complete paralysis(?) is produced." These authors found the irritation of the hemispheres to produce no effect if the pedunculus was cut. They, as well as Hermann,[1] have shown that the "paralysis" following the extirpation of Hitzig's "centres" is not permanent.

---

[1] West Riding Lunatic Asylum Med. Reports, vol. iii. 1873. Proceedings of the Roy. Soc., vol. xxii. p. 229, and vol. xxiii. p. 409. The Functions of the Brain, New York, 1877.

[2] Lezione sop. il Systèma Nervoso Encephalico, Firenze, 1874.

[3] Eckhard's Beitr. z. Anat. u. Phys., vii. p. 127 (1874).

[4] Centralbl. f. d. Med. Wissenschaften, 1874. p. 513.

[5] Eckhard's Beitr. z. Anat. u. Phys., vii. p. 177.

[6] Arch. de Phys. norm. et Path., 1875, pp. 136 and 352.

Brown-Séquard[2] cauterized the convexity of the anterior lobes of the cerebrum with a hot iron, and obtained the same symptoms in the eye and ear of the same side, as was produced by section of the sympatheticus. This author obtained these results only when the cauterization was made on the right side. The cauterization of the left side did not produce the same symptoms. Brown-Sequard says that the result obtained may have been due to "irritation of the trigeminus fibres in the brain-substance." Removal of the cortical substance did not have the same effect. By this method of irritation Hitzig's movements were never produced. On recovery these animals were in the peculiar epileptiform condition described by this author some years since, following section of the sciatic nerve.

Soltmann,[3] of Breslau, making but few experiments owing to the want of the proper animals, found that irritation of the Hitzig "centres" in new-born animals produces no muscular contractions. "When the animal was ten days old, and especially after the thirteenth day, the movements could be produced." Where the "centres" were destroyed in such young animals, no diminished motility resulted.

Soltmann believes the results of the irritation of the cortical "centres" of Hitzig to be due to an irritation of the deeper lying organs of the brain.

Goltz,[4] in a long series of extirpation experiments, obtained results similar to those obtained by Schiff. He observed a marked diminution in the sensibility, which diminution disappeared within a short time after the operation. In conclusion this author says: "No muscular paralysis follows this operation," though he extirpated with the rest of the hemispheres the Hitzig "centres."

From a pathological standpoint numerous[5] arguments in the shape of autopsies have been brought forward, both in support and in opposition to the motor functions of the hemispheres.

In the author's experiments the apparatus employed was a battery of from two to six small Daniell elements, connected with two needles which were applied to the parts of the brain to be irritated. The wire from the battery to the brain had a "Valentin hammer" interposed, by means of which the irritating current could be made or broken at will. Owing to the great liability of error arising therefrom, the induction current was never made use of.

---

[1] Pfluger's Arch. f. d. gesam. Physiologie, x. 77.

[2] Arch. de Phys. norm. et Path., 1875, p. 177.

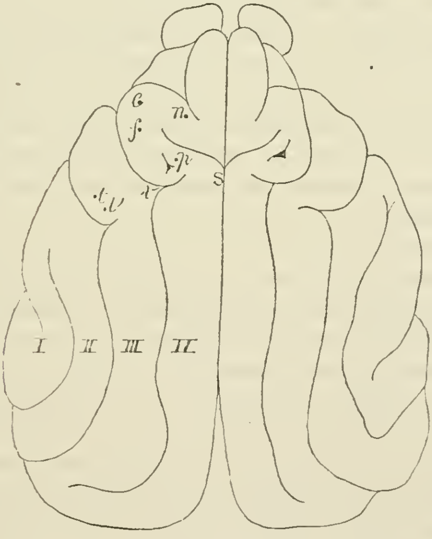
[3] Jahrb. f. Kinderheilk., xi. p. 1.

[4] Pfluger's Archiv, xii. p. 1: xiv. p. 412.

[5] Wernher. Virchow's Arch. B. 56, p. 289; C. Stark. Berl. Klin. Wochenschr. xii. 33, 1874; Samt. Arch. f. Psych. u. Nervenk., 1875, B. 5, p. 201; A. Frey, Arch. f. Psych. u. Nervenk. 1876, B. 6, p. 327.

Irritation of the extreme anterior portion of the cortical substance of the brain produced no apparent effect. As this portion of the brain is very probably concerned in smell, it is evident that, even if this sense had been excited, there are no means known at present by which this excitation can be determined. Ferrier, however, will not confess to a similar ignorance, as he, in speaking of his experiments on apes, locates the sense of smell in the gyrus uncinatus, at the lower portion of the parietal lobe. This to the author seems quite possible, as the fibres from the olfactory lobes pass through this gyrus on their way to the anterior commissure, where they decussate. The criterion that Ferrier went by to determine this excitation of the sense of smell will certainly not be accepted by the majority of physiologists. He drew his conclusion from the irritation of the gyrus uncinatus producing movements of the nasal orifice. For the same reason we might as well say that the "centres" whose irritation produces movements of the orbicularis palpebrarum were the "centres" for the sense of sight.

Fig. 1.



The hemispheres of a dog.—*I. II. III. IV.* The primitive convolutions. *v.* The centre for sight. *e.* The "centres" for the extensors and adductors of the anterior extremity. *f.* For the flexors and rotators of the same. *p.* For the muscles of the posterior extremity. *t.* For the muscles of the face. *n.* For those of the posterior cervical region. *s.* The sulcus cruciatus.

There exist in the dog and in the cat four primitive convolutions arching around the fissure of Sylvius. The fourth convolution describes around the sulcus cruciatus (*s*) an arch. From the irritation of the region here included, and also from irritation of the anterior portion of the third convolution, movements of the muscles of the opposite side of the body have been said to occur. This "irritable zone" corresponds in man to the posterior two-thirds of the frontal and the anterior portion of the parietal lobe.

Mechanical irritation of this region in frogs, guinea-pigs, cats, and dogs, I found not to produce the slightest movement. Chemical irritants also fail to produce movements depending on the local irritation of the "centres." In my experiments neither aqua ammoniæ nor acetic acid were able to produce movements when placed on any portion of the cortical substance of the brain.

Galvanical irritation of the cortical substance of the fronto-parietal lobes of dogs and cats produced the movements observed by the previous experimenters. These movements are, however, nought else than tremors of the muscles, for which the irritated part has been said to be centre. These tremors do not in the least resemble the movements following irritation of the nerves; the latter producing decided contractions or extensions of the respective groups of muscles.

The same tremors are, however, produced by irritating the posterior columns of the spinal cord; so that, were a person to see these movements and not know at what point the irritation was made, he would find it impossible to say whether the irritant was applied to the brain or to the cord. The irritation of the posterior columns not only produces tremors posterior to the point of irritation, but *also of the muscles anterior to this point.* This shows conclusively that these tremors are the results of a reflex action, for, were they due to a direct conduction of the irritation along motor fibres, they would only have occurred in the muscles posterior to the point irritated.

The movements or tremors of the muscles following irritation of the cortex of the brain occurred in a number of experiments, not only on the opposite side of the body to the hemispherical irritation, *but also on the same side.* Thus far I have observed these movements of the muscles on both sides of the body following one-sided irritation only in cats, but there is no reason to doubt their occurrence in other mammals also.

Having seen that irritation of these "centres" produces movements, it was necessary before studying the mechanism of their production to determine the effects of their extirpation. For this purpose I made an opening into the skull just large enough to introduce a needle, and with this needle either the cortical substance alone or portions of the hemispheres and corpus striatum below it were destroyed. In other experiments I destroyed these "centres" by means of chromic acid or ammonia, which, by killing the parts to which they were applied, produced the same effect as the extirpation of these parts. The ammonia method possesses the advantage that the cortical substance can again recover its functions after a comparatively short time.

When by one of these methods the so-called "centres" were destroyed, the animal, after its recovery from the etherization, on first sight presented no symptoms, but, observed more closely, there appeared to be a weakness in the extremities opposite to the side of the operation. This is due, however, not to a weakness of the muscles, for when the animal walks fast it shows absolutely no symptoms. The integrity of the muscular power is unaffected; the animals can stand, walk, run, and jump. Such an animal can do these, but how he does them is another question. He stands, but the limbs opposite to the side on which the operation has been made slip slowly from under him, as if the floor was of oiled glass. When the feet of the unaffected side are placed on their dorsal instead of on their plantar surfaces, the animal immediately returns them to their normal position. If, however, the feet of the affected extremities were placed in contact with the floor on their dorsal instead of on their plantar surfaces, they remained in this position for a long period of time, in fact up to the time when the next general movement took place. This evidently shows that the animal is unable to feel the floor or to know the unnatural position in which its limbs were placed.

The animal walks, not by dragging the affected limbs as it would do were a true paralysis the cause of the trouble, but the leg is thrust out with force and comes down suddenly, resembling very closely the step of a rooster. In walking the dorsal surfaces of the affected feet are just as frequently brought in contact with the floor as are the plantar surfaces. These animals run as they did in their normal state, and in running no difference exists between the two limbs. Jumping is also performed as it is by a normal animal, but on reaching the ground the animal falls over on the affected side, owing to the slipping away of the limbs.

For a physiological illustration of the same phenomena as these which follow the extirpation of the Hitzig "centres," we have merely to examine the symptoms following the section of the posterior columns of the spinal cord. The section of one of these columns causes the limb of the *same side* to present the same change in its functions as if the cortical "centres" for this posterior limb had been removed. The symptoms following section of the posterior columns have repeatedly been shown by physiologists to depend on a loss of the tactile sense. The same loss of tactile sense is observed in locomotor ataxia, in which disease it is chiefly the posterior columns which are diseased. In this malady we see the same want of knowledge of the position of the limbs and the peculiar, heavy sort of walk as we see in animals following section of the posterior columns or extirpation of the "irritable zones." No one at present thinks of speaking of tabes dorsalis as depending on paralysis of the muscles; yet, when the same symptoms are produced in animals by extirpating the "irritable zones," physiologists agree in saying that they show that paralysis of the muscles has been produced by the operation. This want of knowledge of what has previously been determined in physiology and pathology, on the part of even experienced physiologists, is to blame for this as well as for many other evidences of superficial observation.

General sensibility and sensibility on pressure are slightly modified immediately after the extirpation of the "centres," but this impairment, in a very short time, disappears, and may be replaced by a condition of hyperæsthesia.

The paralysis of the tactile sense continues unchanged for about ten days subsequent to the operation, when it commences to disappear, and disappears entirely inside of four weeks. In the posterior extremities the time occupied in recovering is longer than for any other portion of the body. The disappearance is not due to a regeneration of the destroyed nervous substance, but to another portion of the brain taking on itself the functions of the portion destroyed. To this conclusion I have been led by the circumstance that, when the symptoms of the loss of the tactile sense have entirely disappeared, some weeks after the removal of the "centres," careful irritation of the portion of the brain where these centres were, failed to produce tremors of the muscles.

Having seen that the symptoms following the extirpation of the Hitzig "centres" are those of loss of the tactile sense, and that the irritation of the brain in the vicinity of the sulcus cruciatus, where these "centres" have been located, produces an effect not in the least resembling that following irritation of a motor organ, but corresponding in every respect to the effect produced by irritating the posterior columns of the spinal cord, which have been shown to be concerned in the carrying the tactile sense impressions to the nervous centres; we must now attempt to determine whether the symptoms following the irritation depend on the effect produced on the cortical substance or on deeper lying portions of the brain.

The following arguments can be used in favour of the latter and against the former manner of viewing this subject:—

1. As yet we know of no nervous centre—the posterior columns of the cord must be viewed as nerves and not as centres—which are irritable.

2. Extirpation of the cortical substance of the brain, does not prevent irritation of the medullary substance beneath, causing the tremors in the muscles. The tremors, however, no longer followed the irritation, in my experiments, when the anterior portion of the corpus striatum had been destroyed from the side, which operation had the same influence as extirpation of the "centres." Though the tactile sense in these animals returned after a time, yet irritation of the "irritable zone" no longer produced the characteristic muscular movements.

3. When the electrodes were covered with wax, excepting at their point, and then gradually sunk into the brain, the effect of the irritation *increased* as they neared the corpus striatum.

4. Though the loss of the tactile sense does not follow destruction of the

corpus striatum alone, it always followed destruction of the fibres which pass around it in the so-called "vormauer." (Meynert.)

None of these reasons are sufficient to prove that Hitzig was not right in calling the irritable portions of the hemispheres, centres, as my experiments only go to show the continuity in function of the adjacent portions of the brain in their vicinity. But, on the other hand, there is no proof of their being really the parts irritated. The experiments before alluded to, where I destroyed the tactile sense by applying chemical agents to the hemispheres, do not absolutely indicate that the destruction of the cortical substance produced this loss, as we are not able to prove that the agents applied did not also influence deeper lying portions of the brain.

From this it will be seen, that for the present, it is impossible to say whether the so-called "centres" are irritable or not; but this is also in the main immaterial. A subject of much more practical interest, determined in my experiments, is the course which the fibres of so important a portion of the spinal cord as the posterior columns take in the brain.

Schiff[1] has physiologically traced portions of the nervous system possessing the functions of the posterior columns of the cord, into the medulla oblongata, where they more and more take a position to the side, so that on a level with the fourth ventricle they appear to be a continuation of the lateral columns. Stilling,[2] in his anatomical researches, arrived at the same results. It has generally been supposed that the decussation of these fibres takes place in the medulla oblongata; but experiments which I have made have convinced me that in large portion they decussate much higher in the brain.

The following experiment shows this most beautifully:—

A dog, nine months old, while under ether, had 15 ♏ of blood taken from its jugular vein, injected into its brain on the left side, involving and destroying, as was determined at the autopsy, the fibres just below the corpus striatum which form the upper origin of the pes pedunculus. After recovering from the effects of the ether the animal showed the loss of the tactile sense in the extremities of the right side, *i. e.*, the side on which the operation had been made. On feeding the animal I found it to have loss of the tactile sense on the left side of the mouth, from which, though there was no motor paralysis, the milk continually flowed. On giving the animal a bone, he cannot take it on the left side, but readily snaps it up when presented on his right side. As these symptoms occurred on the left side, it shows that crossed paralysis of the tactile sense fibres of the trigeminus occurred, and consequently these fibres must decussate lower down in the brain than the other fibres for the extremities. The temperature was much higher on the side opposite to that on which the injection had been made.

In four days the symptoms manifested in eating had disappeared. In seven days the symptoms in the right anterior extremity had diminished, disappearing in two weeks; those in the posterior extremity still continued for about a week thereafter.

---

[1] Schiff, Lehrb. d. Phys., i. p. 301, 1859.

[2] Stilling, Ueb. d. Textur d. Med. Obl., Erlangen, 1842.

This very difficult experiment succeeded on two other occasions, in one of which Dr. Abbot kindly assisted the author.

These experiments show, that, while crossed involvement of the tactile sense follows lesion or extirpation of the nervous elements above the corpus striatum, and still occurs for the manifestations of the sense in the vicinity of the mouth, when the origin of the pes pedunculus immediately below the corpus striatum is destroyed; it no longer occurs in the latter instance for the extremities, the tactile sense in the extremities being found abolished on the side corresponding to that of the lesion. The decussation of these fibres for the extremities must therefore have taken place either in or around the corpus striatum. That it did not take place in the corpus striatum was shown by other experiments where destruction of this nervous organ, without destruction of the fibres around it, produced no loss of the sense of touch. Where does this decussation take place? On examining a horizontal section of the brain of a mammal made at the anterior portion of the optic thalami, we find that fibres from the fan-like terminations of the pedunculi in the cortical substance of the brain—constituting the first projection system of Meynert—enter the thalami. Some of these fibres decussate with those of the opposite side immediately on leaving the thalami, and pass into the opposite pes pedunculus. It is to be observed that the fibres which come from the cortical substance to the thalami optici largely pass around the corpora striata. These anatomical facts were sufficient to cause the author to examine whether or not these fibres were a continuation of those which he had traced from the so-called motor centres to the vicinity of the corpus striatum, and which correspond in function to the posterior columns of the medulla spinalis. If this were so, destruction of one thalamus would produce the same effect as extirpation of the "irritable zone" on the same side, or of the posterior column of the opposite side.

For the purpose of destroying this ganglion a small orifice was made in the posterior parietal region, and then by means of a needle the thalamus was partially destroyed. Destruction of the whole thalamus was never attempted by this means, as it was not only unnecessary but would have led to error through the consentaneous destruction of contiguous portions of the cerebrum. In other animals one or both thalami were destroyed by injecting aqua ammoniæ coloured with carmine; the latter having been added to show at the autopsy the extent of the injury produced.

In the dogs and cats thus operated upon the same symptoms were produced as followed removal of the cortical "centres" on the same side or section of the posterior column of the opposite side.

A cat in whom the fibres around the left corpus striatum had been destroyed showed loss of the tactile sense on the right side. About three weeks later two minims of ammonia were injected into the optic thalamus of the right side, which caused loss of the sense of touch on the left side, in addition to the previous abolition of this sense on the right side. It must be stated in parenthesis that in destroying these ganglia no portion of the "irritable zone" was involved. *After the destruction of these two portions of the cerebrum irritation of the "irritable zone," as well as irritation of the posterior columns of the cord, failed to produce the characteristic tremors.*

This absence of the irritability of the posterior columns I have frequently observed when in both hemispheres the Hitzig "centres" had been extirpated.

As irritation of the "irritable zone" failed to produce movements when the thalamus of the same side was destroyed, we can infer that the fibres from this portion of the cortical substance pass through the thalami optici on their way to the motor centres, as is shown in Fig. 2. Why not consider these fibres passing through the optic thalamus as centripetal instead of centrifugal fibres? For the simple reason that if the fibres from the posterior columns (*d*) passed through the thalami on their way to the peripheral brain "centres," the destruction of these ganglia could not prevent irritation of the so-called "motor centres" from producing movements, as their connection with the motor fibres would still be intact. But, as we have just seen, the opposite is true, and irritation of the Hitzig "centres" has no effect if the thalamus of the same side has been destroyed.

Fig. 2.

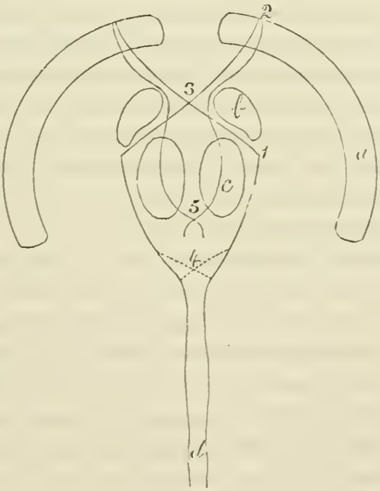


Diagram of the course of the tactile sense fibres in the central nervous system.

It affords me great pleasure to be able to point, in confirmation of the results obtained on the optic thalamus, to the older experiments of Schiff[1] and Nothnagel,[2] who observed the symptoms following the destruction of this ganglion, which I believe to be due to the destruction of the fibres concerned in the sense of touch on their way to the motor centres, wherever these may be.

---

[1] Lehrb. d. Physiologie, i. p. 342, 1859.

[2] Virchow's Archiv, lxii. p. 204.

It may be stated that the excitative motor centres must lie in a portion of the brain below the corpora quadrigemina, as the author found that section of the whole brain on a level with these organs fails to prevent those movements which are usually called voluntary.

a represents the cortical brain-substance; *b*, the corpus striatum; *c*, the optic thalamus; *d*, the posterior columns of the spinal cord, which, at the point 1, have not yet decussated, but they decussate, as will be shown hereafter, on their way to the "irritable zone" (2) in the corpus callosum (3). 4 represents the low decussation of the tactile sense fibres for the face; 5, the anatomically determined decussation of the fibres passing through the optic thalami.

The posterior columns (*d*) have been shown not to have decussated at a point (1) immediately below the corpus striatum (*b*). Destruction of the fibres at this point produces loss of the tactile sense on the side of the body corresponding to that of the operation, while extirpation of the "irritable zone" (2), or of the optic thalamus (*c*), produces the same symptoms on the side opposite to that of the extirpation. Consequently there must be a decussation of the fibres from *d*, before reaching the point 2. It seemed possible to the author that this decussation occurred in the corpus callosum (3). If this were so, galvanical irritation of this organ would produce the peculiar tremors in the muscles which follow irritation of the "irritable zone," or of the posterior columns. In a number of experiments where I carefully irritated the *whole* of the corpus callosum, these tremors occurred in *all* the muscles of the extremities. It must be stated, however, that irritation of the posterior portion of this nervous organ does not produce these characteristic symptoms, but both electrodes must be well placed in the anterior and middle portion.

Destruction of this body produces the same symptoms as destruction of the Hitzig "centres," or the section of the posterior columns of the spinal cord. A dog, æt. seven weeks, in whom I had destroyed the anterior and middle portions of the corpus callosum, lived eleven days after the operation. The symptoms observed were those of loss of the tactile sense on *both* sides of the body, but with no apparent change in the other senses. Irritation of the Hitzig "centres" continued to produce the peculiar muscular tremors, which irritation of the posterior columns no longer did.

These experiments show—

1. That the tactile sense fibres for all the extremities are to be found in the corpus callosum, in which they decussate on their way to the hemispheres.

2. That the fibres from the "irritable zone" do not pass through the corpus callosum on their way to the optic thalami. Did they pass through

this body its destruction must have prevented irritation of the "irritable zone" from producing the muscular tremors; but, as we have just seen, they were not prevented by this operation.

In man congenital absence of the corpus callosum seems to have the same effect as its extirpation has in animals. Chvostek[1] reports a case, the symptoms very closely resembling those of locomotor ataxia, in which the posterior columns presented no signs of disease, but the greater portion of the corpus callosum was absent.

By means of the experiments alluded to in this paper, we can trace the fibres from the posterior columns of the spinal cord to the "irritable zone" of the opposite hemisphere through the corpus callosum. From here they go on their way to the motor centres, around the striated bodies through the optic thalami. The fibres from the optic thalami seem anatomically to decussate immediately on leaving these ganglia.

The results obtained in the author's experiments show that the tactile sense impressions produce movements by a sort of reflex action. As regards the optic thalami this coincides with the conclusion arrived at by Meynert,[2] from his anatomical, and Schiff[3] and Nothnagel,[4] from their physiological researches. These authors believe the optic thalami to be organs concerned in reflex action.

The effects of the irritation of the "centres" of Hitzig are due to the irritation of the fibres concerned in the tactile sense, on their way to the centres of motion.

If the movements following irritation of the posterior columns of the cord, or of the "irritable zone" of the hemisphere, be due to reflex action, they must cease to occur when through various agents these reflexes are prevented. One of the means by which this can be done is by profoundly etherizing the animal. Under these circumstances the author found that galvanical irritation of the posterior columns produced no movements. For the "irritable zone" of the hemispheres, Schiff obtained the same results as Hitzig did later; but recently Albertini affirms that he was unable to prevent the movements by etherization. This experimenter could not have produced profound etherization, as in a large number of experiments the author found, under these conditions, that irritation of the "centres" produced no movements whatsoever. In recovering from the etherization a long time elapses before the hemispheres again become irritable. The latter circumstance is easily explained when we recollect the actions of a person or animal recovering from profound etherization. Their walk resembles that of a case of tabes. If a pin be given such a person, it drops to the floor, owing to the sense of touch still being abolished.

The same effects were seen in animals profoundly narcotized or chloroformed. Nicotine and morphia prevent the irritation of the hemispheres from producing the characteristic movements; and I have no doubt that all substances which destroy sensibility will prevent these movements.

---

[1] Wiener Med. Wochenschr., 1873.

[2] Wiener Med. Jahrb., 1872, p. 188. Psychiatrisches Centralbl., 1873, March.

[3] Lehrb. d. Physiologie, p. 342.

[4] Virchow's Arch., lxii. p. 214.

Repeated respirations rapidly following one another produce, as is well known, a state of insensibility. Under these circumstances, irritation of the hemispheres produces no movements.

As the author has recently shown,[1] a dog in whom the vena porta has been tied, passes rapidly into an anæsthetized state. In such animals, neither irritation of the posterior columns nor of the hemispheres produces any effect.

Reflex actions must be divided into those which are *innate*, and those which are *acquired*. It is not very probable that the reflex activity resulting from the sense of touch was already possessed by the animals at birth, as the sense itself is an acquired one. Who has not with interest observed a young babe in its attempts to hold an object in its hand, which owing to the absence of this sense it is unable to do; or the first attempts it makes to get its fists into its mouth, striking in its efforts points at a considerable distance from this organ. After a time, however, the child *acquires* the faculty of executing these movements without difficulty.

If the reflexes alluded to are acquired, irritation of the "irritable zone" of the hemispheres of a new-born animal, in whom the tactile sense does not exist, would have no effect; nor would extirpation of these centres produce the characteristic symptoms which would follow their extirpation at a later period of life.

In two cats, aborted about six days before the normal end of gestation, the "centres" were irritated without producing any of the characteristic tremors.

In dogs, cats, and guinea-pigs, taken immediately after birth, I irritated the centres, and no tremors were produced. The "centres" on one side were then extirpated, when on comparing the extremities and face on the two sides no difference in their condition was to be observed.

In cats and guinea-pigs the symptoms caused by the irritation and the excision of the "irritable zones" occur in the fourth week, at which time these animals acquire the sense of touch. In the twenty-seven young dogs on whom I experimented, the symptoms did not appear until the end of the fifth week. This corresponds to the fact that the dog acquires the sense of touch at a later period than the cat.

A young dog in whom I extirpated the "centre" for the left posterior extremity showed no symptoms up to the forty-first day, when they appeared without any new operation being made. Five weeks later the symptoms had again disappeared. I have endeavoured to repeat this observation, but always without success, owing to the animals, when operated on so young, dying from inanition in a few days.

---

[1] Phila. Med. Times, May 26, 1877.

In concluding this portion of the subject under discussion, it is necessary to state, in contradiction to previous investigators, that there exists also in the frog an "irritable zone" of the hemispheres with functions analogous to the same in the higher animals. This irritable portion of the hemispheres is confined in the frog to the portion immediately over the tympanum. Much care was necessary in experimenting with these animals, owing to the greater proportionate development of the spinal cord, as compared to that of the brain, making it very difficult to prevent spinal reflexes from interfering with the results.

Conclusions.—1. Irritation of the posterior columns of the spinal cord, of the corpus callosum, or of the so-called "irritable zone" of the hemispheres, produces tremors of the muscles which are due to irritation of sensory fibres before they enter the motor-centres.

2. All substances which destroy sensibility prevent the irritation from producing these tremors.

3. Section of the posterior columns produces loss of the sense of touch on the side corresponding to that of the lesion. Destruction of the corpus callosum produces this effect in the extremities of both sides of the body: while extirpation of one of the "irritable zones," or of an optic thalamus, produces the loss of the tactile sense on the opposite side from that of the operation.

4. None of these operations produces motor paralysis.

5. The reflex movements which are destroyed by the extirpation of the "centres" of Hitzig, or by one of the operations just mentioned, are of the acquired variety, as they do not exist in the animal at birth.

Influence of the Hemispheres on Vision.—Immediately below the "centre" for the posterior extremity there is a portion of the hemispheres, the extirpation of which, in the author's experiments, always produced blindness in the eye of the opposite side (Fig. 1, *v*). The removal of this centre in both hemispheres resulted in complete blindness, from which the animal never recovered while under observation. Blindness resulted from this operation in very young animals, as well as in those which were full-grown.

Influence of the Hemispheres on the Temperature.—In a number of experiments it was found that irritation, by ammonia, of the parietal lobes produces a great diminution in the temperature of the body. This decrease in the temperature, measured in the rectum, frequently amounted to 8° F. While the temperature of the body decreased in this manner, that of the extremities greatly increased, so that one could see the feet become redder and warmer when the irritant was applied.

This effect may have been due to an irritation of the sensory nerves of the membranes, or those of the brain itself, as it is a well-known fact that irritation of a sensory nerve will through its influence on the vaso-motor centres produce an increased arterial pressure, and consequently an increase in the peripheral temperature. But if this were so, why does not the decreased temperature in the rectum follow irritation of other portions of the cortical substance of the brain. The cause most probably lies in the effect of the irritation on the brain-substance itself.

Influence of the Hemispheres on the Circulation.—According to Schiff,[1] the irritation of a large portion of the hemispheres commencing posterior to the olfactory lobes, produces a very marked increase in the pulse, amounting to eighteen pulsations per minute. This did not occur if the vagi had been cut at the plexus gangliofornis.

I have as yet not had the opportunity to repeat these experiments, but see no reason to doubt the results obtained by Schiff, especially as it is a well-known fact that tying both the carotids, whose branches are more especially distributed to the hemispheres, produces, through irritation, an increased blood-pressure, and an increase in the number of heart-beats.

The Extirpation of the whole of the Hemispheres.—On this subject I have made but six entirely successful experiments in mammals, partially owing to the difficulty to keep such animals alive, and partially from my finding that the results obtained did not differ from those obtained by Goltz.

In these experiments the skull was trepanned in four different places; and then from underneath the membranes the hemispheres were gradually scooped out by means of a small shovel-like instrument. The removal of the whole of the hemispheres usually occupied but two days. Any bleeding which occurred was stopped by means of the Penghawar Yambi. At the end of a week the observations were commenced in the animals which survived.

The dogs and cats thus operated on have the appearance of being idiotic. Those which have lost almost the whole of the hemispheres walk very seldom, while those in whom less had been removed go about more, but with a short measured step. If such an animal has a bone placed before him, he is only with great difficulty able to find it. If a bowl of milk was placed below the level of the mouth of a cat in whom the hemispheres had been removed, the animal made the lapping movements long before its mouth reached the milk; and when it did reach it, the milk taken ran out from the side of the mouth almost as rapidly as the tongue of the cat brought it into that organ. Goltz observed a dog several days in succession bite himself in the foot while eating, so that he cried out for pain. These animals were never found with bitten tongues.

This operation always produced complete blindness, but this is not the cause of the difficulty in feeding, as a blind dog in possession of his hemispheres has no difficulty in feeding himself. It cannot be said that his better condition is due to the possession of the senses of smell and of hearing, as the animal *sans* hemispheres also possessed these senses unimpaired. There must be some other cause to produce these symptoms. In my opinion they are due to a *loss of all the after-birth-acquired sensations.* The animal loses the power of associating the impressions received with any which had previously been made; or, as it can be more understandingly, though, perhaps, less accurately, expressed, the animal in whom the hemispheres have been removed has lost the power of memorizing.

---

[1] Altes und Neues ueb. Herznerven, pp. 94, 104.

A dog who very readily gave me his paw, or sat on his haunches, on giving him certain signs, did not even attempt to do so after its hemispheres had been removed. All attempts to learn him his old tricks proved futile.

When a needle was run through the paw of a dog thus mutilated, he gave evidences of feeling pain by running his nose towards the irritated point, which, however, he was unable to find. He had evidently lost all his acquired ideas of a sense of location.

A normal dog will, when placed in a room, seek a sleeping place, to which he always will return, but a dog in whom the hemispheres have been removed is just as likely each time to take a new bed place.

These animals still evidence thankfulness to the person feeding them, but possess no recollection of this person ten minutes later.

Not a muscle of the body of an animal in whom the hemispheres had been removed was paralyzed.

General sensibility appeared to be uninvolved, though at times there appeared to be a state of hyperæsthesia. The senses of touch, of pressure, and of differences in temperature, were no longer possessed by these animals.

ARTICLE VI.

THE ANATOMY OF THE BRACHIAL PLEXUS. By J. F. WALSH, M.D., of Philadelphia.[1]

FOUR years ago, at the suggestion of my preceptor, Dr. Wm. W. Keen, I commenced the investigation of this subject with the intention to dissect as many plexuses as possible, and to determine from these which of the numerous arrangements described in the anatomical works was most common in the subject, and therefore the normal one. To my surprise, after having made a number of dissections, I found that they did not correspond to any of the descriptions of the books, the nearest approach being to the disposition given in Sappey's work. Being confident, from the care taken, that my results were correct, I was led to the conclusion that the variations of the authors were not true ones. That this impression was not erroneous, I subsequently proved in the manner described in the following pages.

---

[1] Extracted from a Thesis presented to the Faculty of the Medical Department of the University of Pennsylvania for the degree of Doctor of Medicine, and awarded one of the prizes, March, 1876. The remainder of the Thesis on the Comparative Anatomy of the Plexus, together with the anomalies found in the human subject, the author expects to present to the Academy of Natural Sciences of Philadelphia.

In my dissections I did not always obtain both sides of the subject, hence, quite often, one subject furnished me only one plexus. It is for this reason that I have enumerated the number of plexuses, instead of subjects. Many dissections made by others, in my absence, I have omitted, considering only those made by myself or in my presence, making in all three hundred and fifty plexuses.

The arrangement of the nerves constituting the brachial plexus is one of the few subjects in gross anatomy, I believe, on which anatomists differ much. Among the numerous and varied descriptions to be found there is no single one which may be said to be more generally accepted than the others, so that it is impossible to determine from the books what is the most constant or normal arrangement. What one author will describe as the usual disposition another will state to be an anomaly, and so on to the great confusion of the reader, who finally will, very likely, be led to the conclusion that this plexus has no special arrangement, but that it is an irregular intertexture of nerve filaments constructed upon no definite plan. Some anatomists, in fact, directly state this—Maclise,[1] for instance, says, "The axillary plexus well merits its name, for I have not found it in any two bodies assuming a similar order or arrangement."

The following examples will give an idea of what a variety of descriptions exists. Gray[2] states that—

> "The fifth and sixth cervicals unite near their exit from the spine into a common trunk; the seventh cervical joins this trunk near the outer border of the middle scalenus; and the three nerves thus form one large single cord. The eighth cervical and first dorsal nerves unite behind the anterior scalenus into a common trunk. Thus two large trunks are formed, the upper one by the union of the fifth, sixth, and seventh cervicals; and the lower one by the eighth cervical and first dorsal. Opposite the clavicle, and sometimes in the axilla, each of the cords gives off a fasciculus, by the union of which a third trunk is formed."

Heath,[3] Leidy,[4] Quain,[5] Ellis,[6] and Flower[7] give the same arrangement. The arrangement furnished alike by Sappey,[8] Cruveilhier,[9] Hirschfeld,[10] Henle,[11] Hyrtl,[12] Longet,[13] and Lucas[14] differs mainly from the preceding in that the seventh does not join the common cord of the fifth and sixth, but runs as a separate trunk, dividing below as do the other trunks.

---

[1] Surgical Anatomy, 1861, p. 29.

[2] Anatomy, Descriptive and Surgical, 1871, p. 638.

[3] Practical Anat., 1st Amer. from 2d Eng. ed., edited by Keen, 1870, p. 31.

[4] An Elementary Treatise on Human Anat., 1861, p. 563.

[5] Human Anat., 7th ed., p. 81.

[6] Demonstrations of Anat., 7th ed., p. 81.

[7] Diagrams of the Nerves of the Human Body, edited by Keen, 1872, pl. iii.

[8] Traité d'Anat. Descrip., 2de ed., tome iii. 1872, p. 406.

[9] Traité d'Anat. Descrip., 4me ed., tome iii. 1871, p. 599.

[10] Traité et Iconograph. du Syst. Nerv., 1866, p. 147.

[11] Handbuch der Systematisch. Anat. des Mens., Drit. band, zweite abth., 1871, p. 473.

[12] Handbuch der Anat., 8er ed., 1863, pp. 838–9.

[13] Anat. et Physiol. du Syst. Nerv. de l'Homme et des Animaux vertb., 1842, tome i. pp. 844–5.

[14] The Normal Arrangement of the Brachial Plexus, Guy's Hosp. Rep., vol. xx. 3d Series, 1875, p. 539.

Holden,[1] Paulet,[2] and Wilson[3] say that there are only two cords in the axilla, one formed by the fifth, sixth, and a portion of the seventh, the other by the remainder of the seventh, the eighth, and first dorsal; while Malgaigne,[4] Langer,[5] Aeby,[6] Létiévant,[7] Cloquet,[8] and Mangeti[9] describe only one large bundle into which the five primary trunks run.

Harrison,[10] Wilson,[11] Morton,[12] Luschka,[13] Führer,[14] Valentine,[15] Velpeau,[16] Sarlandiere,[17] Wistar,[18] Bryant,[19] Tuson,[20] Paxton[21] Hooper,[22] Fyfe,[23] Cuvier,[24] Bell,[25] Bayle,[26] Douglas,[27] Edwards,[28] Monro,[29] Cheselden,[30] and Scarpa[31] simply describe the plexus as an interlacement of nerve fibres, evidently considering that there is no definite plan in its arrangement.

There are some descriptions which, as far as I can ascertain, are peculiar to single authors. Among these may be mentioned those of Heitzman,[32]

---

[1] Manual of Anat., 3d ed., p. 208.

[2] Traité d'Anat. Topograph., 1870, pp. 297–8.

[3] The Anatomist's Vade Mecum, 9th ed., p. 513.

[4] Traité d'Anat. Chirurg., 1859, tome ii. p. 152.

[5] Topografisch. Anat., 1859, p. 498.

[6] Lehrbuch der Anat., 1871, p. 884.

[7] Traité des Sections Nerveuses, 1873, p. 468.

[8] A System of Anat., trans. from the French by Robert Knox, 4th ed., 1830, p. 487.

[9] Theatrum Anatom., tom. prim., 1723, pp. 181–2.

[10] The Dublin Dissector, 3d Amer. from 5th Dub. ed., p. 336.

[11] Human Anat., 4th Amer. from last London ed., 1856, p. 414.

[12] Illust. System of Anat., 1849, pp. 512–13.

[13] Anat. des Mens., Band iii., abth. i. 1865. p. 236.

[14] Handbuch der Chirurg. Anat., Erste abth., 1857, p. 398.

[15] Traité de Néuralog., traduit de l'Allemand par A. J. Jourdan, Encycloped. Anat., tome v. 1843. pp. 503–4.

[16] Manuel d'Anat. Chirurg., 1838, pp. 200–1.

[17] Traité du Syst. Nerv., 1840, p. 156.

[18] A Syst. of Anat., 1817, vol. ii. p. 352.

[19] Examinations in Anat. and Physiol., 1835, p. 383.

[20] The Dissector's Guide, 2d ed., 1837, p. 109.

[21] An Introduction to the Study of Human Anat., 1834, vol. ii. p. 105.

[22] The Anatomist's Vade Mecum, 7th ed., 1805. p. 176.

[23] A Compendium of the Anat. of the Human Body, 1802, vol. ii. p. 247.

[24] Lectures on Comp. Anat., trans. from the French by Wm. Ross, 1802, vol. ii. p. 250.

[25] The Anat. of the Human Body, 1809, vol. ii. pp. 120–1.

[26] Traité élément. d'Anat., Quatrième ed., 1833. p. 356.

[27] An Anatom. Exposition of the Structure of the Human Body, 5th ed., 1776. pp. 79–80.

[28] Manual of Surg. Anat., 1st Amer. from 1st Lond. ed., trans. by Wm. Coulson, 1828, p. 109.

[29] A Syst. of Anat. and Physiol., 1801, vol. ii. pp. 21–25.

[30] Anat. of the Human Body, 9th ed., 1768, p. 242.

[31] Annatom. Annotat. de Nerv. Gangliis et Plexibus, Lib. prim., 1753, pp. 70–2.

[32] Descrip. und Topograf. Anat., Nerven Syst., 1871, p. 141.

Rudinger,[1] Froriep,[2] Pirogoff,[3] Krause,[4] Meckel,[5] Craigie,[6] Vesalius,[7] and Swan.[8] The arrangement that Heitzman gives is as follows: The fifth and sixth unite to form a single trunk; the eighth and first dorsal form another, which almost immediately splits into two portions of unequal size, a superior, quite small, and an inferior almost as large as the main trunk; the seventh runs downward for a short distance as a single trunk, but finally also divides, the superior branch being inconsiderable, the inferior large. These five cords then unite in the following manner; the superior division of the seventh joins the common trunk of the fifth and sixth, while the inferior unites with the superior branch of the eighth and first dorsal, leaving three cords. Finally, the two upper of these fuse together, so that opposite the clavicle there are two large trunks. In the axilla each one gives off from its internal aspect a branch so as to form a third cord.

Now, if all these arrangements really exist the plexus is variable indeed; but what I propose to show is that they do not exist, and that most of them can be artificially produced. There is only one arrangement, which the nerves follow without much deviation; it is shown in Fig. 1: the fifth cervical, after receiving a small filament from the fourth near its exit from the intervertebral foramen, unites with the sixth at the outer border of the Scalenus Anticus. Most anatomists, if not all, describe these two nerves as fusing together to form a large single trunk; but such is not the case. The manner in which the filaments of the two commingle is this: the fifth, just as it comes in contact with the sixth, gives off from its inner side a small bundle of filaments, which runs downward and across the latter nerve to receive a supply from its inner aspect, thus forming a cord of quite considerable size; the remaining fibres of the two nerves unite somewhat higher up, making another cord larger than the preceding one, which is at first placed externally and posteriorly, but finally internally to it.

The eighth cervical and first dorsal unite beneath the scalenus anticus into a common trunk, which a little lower down gives off from its upper side a small branch to the musculo-spiral nerve.

The seventh cervical runs separate, splitting about an inch and a half above the clavicle into two portions. The superior, somewhat the larger of the two, unites with the anterior branch of the fifth and sixth to form the outer cord; the inferior with the posterior of the same to form a trunk common to the circumflex and the larger root of the musculo-spiral.

The outer cord is formed opposite the lower border of the clavicle.

[1] Anatomie des Mens., Ruckenmarks-nerven, 1870, Taf. ix.

[2] Atlas Anatomicus, 5er ed., Taf. ix.

[3] Topograf. Anat., Tafs. 17, 18.

[4] Beiträge zur Nerv. der Oberen Extrem., 1865, Taf. iii.

[5] Manual of Gen. and Descrip. Anat., trans. by A. Sidney Roane, 1832, pp. 21–26.

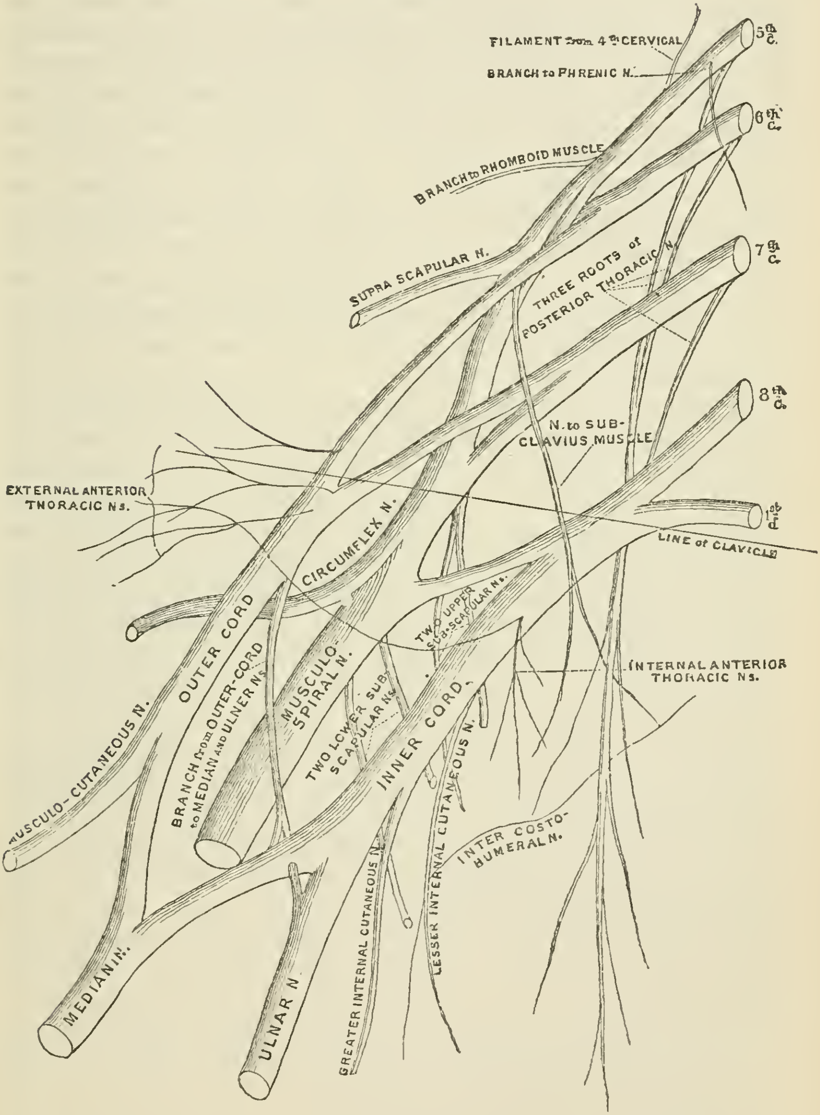
[6] Elements of Gen. and Path. Anat., 1828, p. 374.

[7] De Human. Corp. Fabrica, 1543, p. 344.

[8] Demonstration of the Nerves of the Human Body, 1832, p. 2, iii.

Midway between this bone and the coracoid process, it gives off from its internal aspect a small branch, which, running obliquely across the axilla, in front of the axillary artery, joins the inner cord just at the point where it divides into the internal head of the median and the ulnar. Here its component filaments separate into two bundles of about equal size, one of which supplies the internal head of the median, while

Fig. 1.


FILAMENT from 4th CERVICAL
BRANCH to PHRENIC N.
5th C.
6th C.
BRANCH to RHOMBOID MUSCLE
SUPRA SCAPULAR N.
THREE ROOTS of POSTERIOR THORACIC N.
7th C.
8th C.
N. to SUB-CLAVIUS MUSCLE
EXTERNAL ANTERIOR THORACIC Ns.
1st d.
LINE of CLAVICLE
CIRCUMFLEX N.
OUTER CORD
TWO UPPER SUB-SCAPULAR Ns.
INTERNAL ANTERIOR THORACIC Ns.
MUSCULO-SPIRAL N.
BRANCH from OUTER-CORD to MEDIAN AND ULNER Ns
MUSCULO-CUTANEOUS N.
INNER CORD
TWO LOWER SUB SCAPULAR Ns
LESSER INTERNAL CUTANEOUS N.
INTER COSTO-HUMERAL N.
GREATER INTERNAL CUTANEOUS N.
MEDIAN N.
ULNAR N.

the other pierces the latter and joins the ulnar. I have found only three anatomists who refer to it. Leidy,[1] in his description of the ulnar nerve, says that it is derived from the lower and outer trunks (that is, the internal and external cords), thereby inferring that such a branch exists. Henle[2] says that sometimes the ulnar nerve has a partial origin from the outer cord; and Turner[3] describes it as an anomaly. It is shown in the diagrams of the plexus in the works of Cruveilhier,[4] Hirschfeld,[5] Sappey,[6] Swan,[7] and Paulet;[8] but these authors say nothing about it in their descriptions of the nerves. But though so rarely met with in anatomical works, it is by no means as infrequent an occurrence in the subject; indeed, its presence is almost constant. I did not notice it in the first sixty plexuses examined, but after once observing it, I always carefully searched for it, and in the remaining two hundred and ninety plexuses I found that it was absent in only twenty-five. In thirteen of these, moreover, this branch (whose filaments are, as a rule, derived entirely from the seventh cervical) was replaced by a small branch which arose directly from the superior division of the seventh, above the clavicle, and, running beneath that bone in front of the lower portion of the subclavian artery, joined the inner cord quite high up in the axilla. On tracing the distribution of its filaments it was found that they were distributed to the internal head of the median and the ulnar. In the cases in which it was present it was not always of the same size. Usually it was intermediate in bulk between the two internal cutaneous nerves, this obtaining in one hundred and fifty of the plexuses; in seventy-six it was smaller, being about equal, in most, to the lesser internal cutaneous; in a few, reduced to a mere filament; and in thirty it was much bigger, being somewhat larger than the greater internal cutaneous.[9] It did not always arise from the same point of the outer cord; in one hundred and fifty-six plexuses it came off a short distance above the middle of the cord; and in the rest at different points lower down; in thirty arising from the outer head of the median itself, but having, nevertheless, the same distribution as the others, namely, to the inner head of the median and the ulnar. The ulnar nerve in ten cases did not receive any supply from this branch, all its filaments running into the internal head of the median.

The division of the outer cord into musculo-cutaneous and external head of median takes place at a short distance below the level of the coracoid process.

The inner cord is formed opposite the lower border of the clavicle. It is a little longer than the outer, dividing somewhat lower down. At about its middle it gives off the lesser internal cutaneous, and an inch below, the greater.

---

[1] Op. cit., p. 568.
[2] Op. cit., p. 501.
[3] Journal of Anat. and Physiol., vol. vi. 1872, p. 103.
[4] Op. cit., p. 602.
[5] Op. cit., p. 56.
[6] Op. cit., p. 407.
[7] Op. cit., p. 26.
[8] Op. cit., Atlas.
[9] In the plexus from which the diagram was copied the branch was larger than normal.

There is no true posterior cord, such as, for instance, Gray, Quain, Sappey, Cruveilhier, Henle, and Hyrtl describe it; namely, as a large trunk formed in the upper portion of the axilla, running through this region and dividing into the musculo-spiral and circumflex nerves. These two latter arise high up, and proceed through the above space as separate cords, though bound together in a common envelope of fascia so as apparently to form but one trunk; the point at which they diverge from each other appearing to be the place at which this splits. The circumflex springs from the outer side of the trunk formed by the posterior division of the fifth and sixth, and the lower one of the seventh, the remaining portion of the latter, with the small branch of the eighth cervical and first dorsal forming the musculo-spiral.

Concerning the branches of the plexus the descriptions of authors do not vary much, hence I will only mention those about which there is some doubt.

The supra-scapular nerve came off from the posterior division of the fifth and sixth; in most cases being composed entirely of filaments from the fifth.

The posterior thoracic has three roots. Most anatomists mention only two; among these are Cruveilhier, Sappey, Wilson and Buchanan, Flower, Holden, Maclise, Rüdinger, Aeby, Ellis, Morton, Quain, Wilson, Velpeau, Richardson, Leidy, Sarlandière, and Paxton. Gray, Luschka, Heath, Richet, and Meckel say that it usually has two, but sometimes three; while Hirschfeld, Hyrtl, Henle, Lucas, Heitzman, Malgaigne, and Valentin describe these as the normal arrangement.

The subscapulars are apt to vary as to their number. There are four as often as three, and sometimes five. When four exist, the fourth is furnished by the upper subscapular; this being split up into two nerves having a common origin, as shown in Fig. 1. When five are present, the second as well as the first is divided. The upper subscapular, or the two upper when there are four, arise from the posterior division of the fifth and sixth cervicals. The middle arises from the trunk common to the circumflex and musculo-spiral, while the lower springs from the musculo-spiral.

The above I may safely assert to be the normal arrangement. Of the three hundred and fifty plexuses that I examined, in only two was there an entire alteration of the plan; while in seventy-one others, or nearly twenty per cent., there were variations in single branches, which, however, did not affect much the general mode of construction. Thus in nine cases the outer cord did not divide at the usual place, but ran immediately into the median nerve, from which, lower down, the musculo-cutaneous arose; in twelve, a short distance below the coracoid process, the outer cord split into a very small outer portion, and a large inner which joined the branch from the internal cord to form a median of unusually large size; this, at about the junction of the upper and middle thirds of the humerus, furnishing the cutaneous portion of the musculo-cutaneous, the muscular part of it constituting the small branch just mentioned; in three the branch from the trunk of the eighth cervical and first dorsal to the musculo-spiral was divided, one division coming off at the usual place, the other lower down from the internal cord; in thirteen the seventh cervical, instead of the outer cord, furnished the small branch supplying the internal head of the median and the ulnar; in thirteen the median arose by three heads, two external and one internal, the upper external springing from the outer cord a short distance above the coracoid process, the other coming off at the usual level; in eight there was no branch from the outer to the inner cord; in nine, besides the branch from the outer, there was another from the inner to the outer, the two branches crossing each other so as to form an X over the axillary artery; and in four the branch from the inner alone existed.

It is an easy matter to manufacture a variation by leaving pieces of fascia adherent to the nerves here and there throughout the plexus. In this manner I have produced many of the arrangements previously quoted, and a number of others besides. In order to understand how this can be done, I will first give a description of the fascia binding together the nerves of the plexus. The two divisions of the fifth and sixth are held together in a common envelope so as apparently to constitute but a single trunk, this continuing down to the axilla; the two branches of the seventh in like manner are united, and also the two of the common trunk of the eighth cervical and first dorsal. Apparently, and practically, then there are three cords in the neck, two at different distances above the subclavian artery, running obliquely downward toward the small upper opening of the axilla, and another behind the vessel, proceeding horizontally in the same direction. The three thus converge toward each other, and come together opposite the clavicle. Here they seem to fuse into one huge bundle, placed to the upper and outer surface of the axillary artery (the vessel making a slight bend downward, leaving the nerves above), the appearance being caused by their being enveloped together in a single sheath. This arrangement continues to a short distance above the point where the artery enters the plexus. Within the common envelope, the unions and divisions previously described take place, which result in the four cords mentioned above, viz., inner, outer, and two posterior (musculo-spiral and circumflex). Processes of fascia also run in among the nerves, forming secondary bundles; thus, opposite the upper border of the clavicle the large single trunk can be resolved into two lesser ones, one made up of the two divisions of the fifth and sixth and the two of the seventh, and the other of the two branches of the eighth cervical and first dorsal, while lower down there are three, the third being formed by two roots coming from each of the preceding bundles. The outer of the three constitutes the outer cord proper, the inner the inner cord proper; while the posterior is formed of two smaller cords of unequal size, the larger being the musculo-spiral nerve, and the smaller the circumflex. As the axillary artery enters the plexus it divides the original single bundle into two, one placed to its outer and upper side, the other to its posterior and inner aspect. The former constitutes the outer cord. The latter is made up of the inner cord, and the musculo-spiral and circumflex bound together into one, so that it can be further resolved into three. A short distance below this the terminal branches of the plexus come off; the musculo-cutaneous and outer head of median spring from the outer bundle, while the inner head of median, the ulnar, the internal cutaneous, the musculo-spiral, and the circumflex, apparently have a common origin from the posterior and inner one.

Fig. 2.

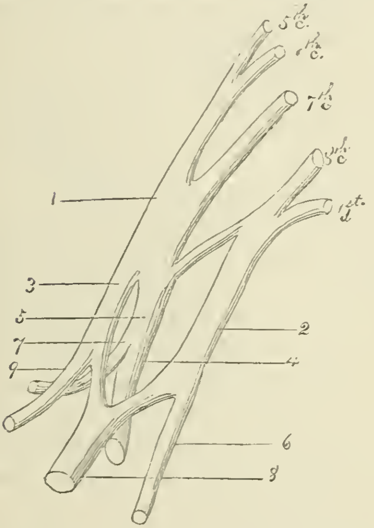


Fig. 3.

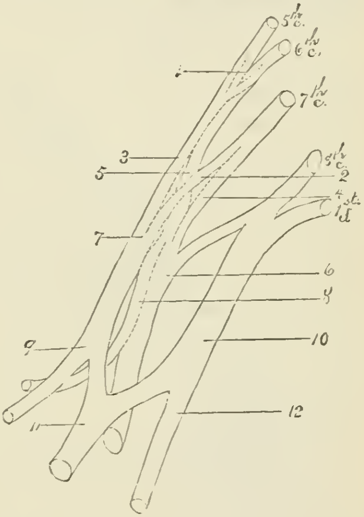


Fig. 2. Showing an arrangement produced by leaving undisturbed the enveloping fascia in the upper portion of the plexus. The smaller branches have been left out to avoid confusion. 1. Apparently a common trunk formed by the fifth, sixth, and seventh cervicals and a branch from the eighth cervical and first dorsal; 2. Inner cord; 3. Outer cord; 4. Musculo-spiral nerve; 5. Apparently a trunk common to circumflex and musculo-spiral nerves; 6. Ulnar nerve; 7. Circumflex nerve; 8. Median nerve; 9. Musculo-cutaneous nerve.

Fig. 3. Same plexus showing the arrangement of the nerves within the envelope of fascia. 1. Union of 5th and 6th cervicals; 2. Superior division of seventh cervical; 3 Anterior division of fifth and sixth cervicals; 4. Inferior division of the same; 5. Posterior division of the same; 6. musculo-spiral nerve; 7. Outer cord; 8. Circumflex nerve; 9. Musculo-cutaneous nerve; 10. Inner cord; 11. Median nerve; 12. Ulnar nerve.

In Fig. 2, the fascia has been entirely cleared away from the lower or inner portion of the plexus, while it has been allowed to remain in the upper. In this way an arrangement has been produced entirely different from the normal one. The fifth and sixth form a large single trunk, which unites below with the seventh. The cord thus formed receives a small addition from the eighth cervical and first dorsal, and then divides into two portions, the outer being the true outer cord, the inner the musculo-spiral and circumflex joined together. Within the enveloping fascia, however, as shown by the dotted lines in the lower figure, Fig. 3, the various divisions and unions took place which are found in the normal plexus. This was proved by subsequently dissecting off the adherent tissue; indeed, by simply stretching the parts the nerves could be seen dividing beneath it.

Fig. 4.

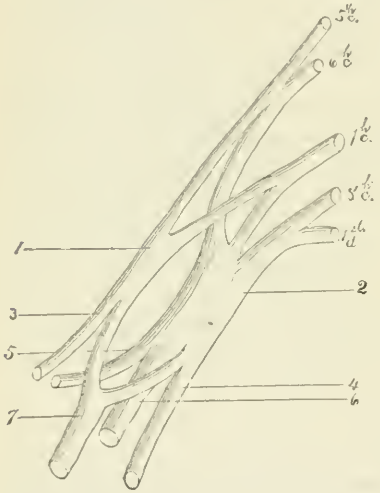


Fig. 5.

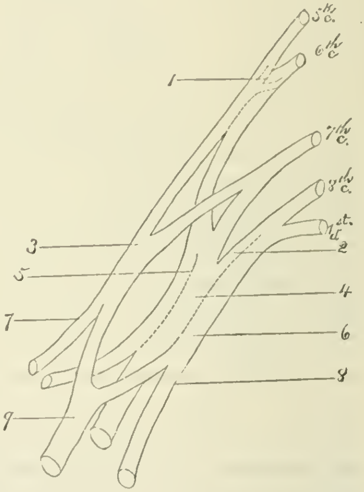


Fig. 4. Another arrangement produced by leaving undisturbed the fascia in the lower portion of the plexus. 1 Outer cord; 2. Apparently a huge trunk formed by the posterior division of the fifth and sixth cervical, the inferior of the seventh, and of the eighth and first dorsal, from which arise in common the ulnar, internal head of the median, the musculo-spiral, and the circumflex; 3. Musculo-cutaneous nerve; 4. Ulnar nerve; 5. Circumflex nerve; 6. Musculo-spiral nerve; 7. Median nerve.

Fig. 5. Same plexus showing the arrangement of the nerves within the envelope of fascia. 1. Union of fifth and sixth cervicals; 2. Branch from trunk of eighth cervical and first dorsal to musculo-spiral; 3. Outer cord; 4. Musculo-spiral nerve; 5. Circumflex nerve; 6. Inner cord; 7 Musculo-cutaneous nerve; 8. Ulnar nerve; 9. Median nerve.

In Fig. 4 the fascia in the lower portion of the plexus is not dissected off, and also a small portion covering the fifth and sixth at the point where they branch. Here we have two cords in the axilla; a smaller outer one, and a very large internal one. The latter is composed of the inferior divisions of the fifth, and sixth, and seventh cervicals, and the common trunk of the eighth cervical and first dorsal, and gives off in the lower portion of the axilla, the circumflex, musculo-spiral, internal head of median, the ulnar and internal cutaneous nerves. The outer cord is formed of the two superior branches of the fifth, and sixth, and seventh cervicals. On subsequent dissection the plexus was reduced to the normal arrangement as in the previous case.

I could give numbers of other forms produced in the same manner had I the space; but these two examples will be sufficient to demonstrate my point. In this way, also, I have made the arrangements to be found in the works of Gray, Heitzman, Froriep, Rüdinger, Pirogoff, Malgaigne, Sappey, and Holden, in part. To produce Heitzman's, however, I had to take a plexus in which the common trunk of the eighth cervical and first dorsal presented the anomaly previously described—namely, giving off two branches instead of one to the musculo-spiral; the author evidently having hit upon an anomalous plexus for his description. The arrangement of Sappey corresponds very nearly to the one I have given, differing only with regard to the union of the fifth and sixth and to the posterior cord. We have seen that the appearance of a posterior cord is produced by the musculo-spiral and circumflex nerves being held together after their origin in a common envelope of fascia. This author also does not mention the small branch proceeding from the outer to the inner cord. But this must, of course, be due to its having been destroyed in the dissection. Holden's arrangement will be seen to be very like the one in diagram 3. He, however, says that the outer cord is formed by the fifth, sixth, and a portion of the seventh, and the inner of the remaining fibres of the seventh, of the eighth, and of the first dorsal. This disposition I have never found even as an anomaly, and as it could not be made in the manner under consideration I cannot account for it in any way.

Some anatomists have gone too far, instead of not far enough, in their dissections; that is, have divided up the nerves too much. In this way no doubt the arrangements of Krause, Morton, Meckel, Vesalius, Swan, and all those anatomists who simply describe an interlacement of nerves, have been constituted, for I have produced them myself in the same manner. Hirschfeld, in his diagram, represents the fifth and sixth cervicals as each dividing high up, the four divisions subsequently uniting below. This has been caused by forcibly splitting up the nerves above the point where their filaments naturally arrange themselves into two portions. The disposition given by Craigie I cannot account for. I have never found it even as an anomaly.

There are two rules to be followed in the dissection of the nerves. One is that the point at which two or more nerves unite is not where they come together but where their filaments commingle. The other that the point of division of a nerve trunk is not where the branches separate from each other, but where the component filaments of the trunk arrange themselves into the several branches. In nearly every case when two or more nerves unite, before their fibrilles intermingle, they are held together for some distance as separate cords within a common envelope of fascia. In the same way when one divides the real point of division is some distance above the apparent one; that is, where the branches diverge from each other.

Dissected in this way nearly every plexus will be found to resolve itself into one and the same arrangement, and it will also be discovered that most of the numberless variations to be found in anatomical works are nothing but normal arrangements distorted by wrong dissections.

As there seems to be some difference of opinion with regard to the distribution of the filaments composing the five primary trunks to the terminal branches of the plexus I will give my results in seventy-four plexuses. Previous to dissecting each one I immersed it for two days in dilute nitric acid[1] (one part of the fuming acid to four of water). By this means the connective tissue (areolar tissue) surrounding the nerves was gelatinized so that the component filaments of each nerve could be distinctly seen through it, in this way making the dissection much clearer than without preparation; indeed, in the latter case it was impossible to determine accurately the distribution. After this I pinned it on a shallow black basin filled with water in such a way as to put each nerve on the stretch, and then dissected it beneath the water. The latter floated up any shreds of connective tissue not affected by the acid, thus preventing them from rolling up and imitating, as they often do so closely, true nerve fibres, while the dark background of the basin rendered each white fibrile clear and distinct.

The musculo-cutaneous was supplied by the fifth and sixth in fifty cases, in twenty-three by these and the seventh, and in one (an anomalous plexus) by a few filaments from the fourth, and by the fifth and sixth. The median in sixty-six by all five, in eight by the four lower. The ulnar in seventy-one by the seventh, eighth, and first dorsal, in two by the two latter, and in one (same anomaly as above) almost entirely by the seventh, a few fibres being furnished by the eighth. The greater internal cutaneous in fifty-three by the eighth and first dorsal, in twenty by the first dorsal, and in one (same anomaly) by the seventh alone. The lesser internal cutaneous in sixty-two by the first dorsal, in eleven by the eighth and first, and in one (same anomaly) by the seventh alone.[2] The circumflex in sixty-three by the fifth and sixth, in ten by the fifth, sixth, and seventh, and in one (same anomaly) by the seventh and eighth. The musculo-spiral in sixty-seven by the fifth, sixth, seventh, and eighth, in six by all five, and in one (same anomaly) by the sixth and seventh.

---

[1] I tried other substances such as sulphuric, muriatic, and acetic acids, caustic soda and potash, salt, and lime-water, but none acted as well as nitric acid. If made stronger than the above it would destroy the neurilemma and pulpify the nerve substance, rendering dissection impossible. I also tried boiling the nerves, but this macerated them so much that they fell apart in small shreds.

[2] This nerve, also, receives further down the intercosto-humeral nerve made up of filaments from the second dorsal nerve.

I will also add that the sensory and motor fibres of each trunk are thoroughly mixed by the time that they emerge from the intervertebral foramina, so as not to be distinguishable from each other. The two roots (sensory and motor), on coming together a short distance from the intervertebral foramen, immediately commingle their filaments.

It will be seen from the description of the nerves previously given, that in case it becomes necessary to destroy the distributions of the nerves of the inner side of the arm, the small branch from the outer cord to the ulnar and the internal head of the median will have to be cut as well as the inner cord. It should also be remembered in operations upon the plexus that the small branch from the fourth cervical does not run into the plexus proper, but is simply confined to the branch to the rhomboid muscle, and that the intercosto-humeral joins the lesser internal cutaneous in the lower third of the axilla.

I desire to take the opportunity here of expressing my sincere thanks to Drs. W. W. Keen and H. C. Chapman for the kind interest which they chose to take in my work, and for the many facilities for dissection and observation afforded me by them.

ARTICLE VII.

FALLACIES OF REINSCH'S TEST FOR ARSENIC.

By THEODORE G. WORMLEY, M.D., Professor of Chemistry in the Medical Department of the University of Pennsylvania.

IN the application of Reinsch's test for the detection of arsenic, as is well known, the physical appearance of the deposit will rarely enable the observer to state, with any degree of certainty, its true nature, since there are other metals that will deposit upon the copper under like conditions, and may present a very similar appearance. Hence, to determine the true nature of the deposit it is necessary to subject it to a further or confirmatory test, which usually consists in heating the coated copper in a reduction-tube, and observing the character of the sublimate, if any, produced, which in the case of arsenic consists of octahedral crystal, even if only an almost infinitesimal quantity of that metal be present.

The production of these crystals has generally been considered conclusive evidence of the presence of arsenic, since the only other metals that will yield sublimates are mercury, in which the sublimate is in the form of minute globules, and antimony, which, as usually stated, will yield an amorphous sublimate.

The statements in regard to the behaviour of the antimony deposit, however, have been somewhat discordant. Thus, by some writers, it is stated that this metal fails to yield any sublimate whatever; by others, that it yields an amorphous sublimate; and by others still, that the deposit is either amorphous or granular. According to Professor W. A. Miller, however, the antimony deposit, when heated, "gradually becomes oxidized, and at a higher temperature the oxide is volatilized, condensing in needles; not, like arsenic, in octahedra." (*Elements of Chemistry*, ii. p. 602.)

This statement of Professor Miller was strongly urged a few years since in a somewhat noted trial as evidence of the *absence* of antimony, since on the application of the copper test there was a failure to obtain crystalline needles. Immediately after this trial, in 1872, we very carefully examined this test in regard to the character of the sublimate produced by antimony. In over fifty consecutive experiments of this kind, in which copper, pretty heavily coated with antimony, but used in small portions at a time, was employed, we failed to obtain well-defined crystalline needles, except in some three or four instances in which a few needles were observed, and in one in which the sublimate consisted largely of large groups of prismatic needles with single prisms.

But, what is of more importance in a forensic point of view, we found that the sublimate produced from antimony might contain *octahedral crystals* of antimonic oxide, and that under certain conditions it was almost sure to contain such crystals. In a number of instances sublimates were obtained, which, when examined under the microscope, presented fields which, taken alone, could not be distinguished from an arsenical sublimate by the most experienced eye.

These octahedral crystals are more likely to form when the heat is applied very gradually, and especially when the reduction-tube is relatively large to the quantity of deposit submitted to sublimation. In no instance were octahedral crystals obtained when a very narrow or contracted tube was employed. It would thus appear that for the production of crystals, antimony required a more free supply of air than arsenic, although the absolute quantity of oxygen required is less.

Although it is thus possible to obtain from antimony sublimates, certain portions of which, under the microscope, are not to be distinguished from the results obtained from arsenic, yet there is considerable difference in the general behaviour of these metals under the action of this test.

1. The antimony deposit requires a much higher temperature to volatilize it, vapourizing at little, if any, below a dull red heat; whereas, according to recent investigations, metallic arsenic volatilizes at about 356° F., or, according to Professor Guy, even so low, when in small quantity, as 230° F.

2. The position of the sublimate in the reduction-tube, as usually ob-

tained, may serve at once to distinguish the antimonial from the arsenical deposit. In the case of antimony, on account of its less volatility, the lower margin of the sublimate (in which the crystals, when present, are found) is only slightly in advance of the slip of copper, or the sublimate may even form on the sides of the tube surrounding the copper, especially when the heat is restricted to the lower end of the tube; whilst, as is well known, in the case of arsenic the sublimate usually forms half an inch or more in advance of the copper foil.

3. The general appearance of the sublimate under the microscope, even when octahedral crystals are present, usually differs very greatly from that obtained from arsenic, the octahedra being confined to the lower margin of the sublimate, and many more appearing opaque than in the case of that metal, and there being many granular and opaque points interspersed among the crystals. Moreover, only a single field, or at most a very small portion of the sublimate will present crystals, the other portions being either wholly amorphous, or at most granular.

As is well known, the arsenical sublimate, as usually obtained, consists wholly of octahedral crystals, which gradually diminish in size from the lower portion of the sublimate to the upper margin, where, under a low power of the microscope, they may appear as mere points; which, however, under a higher power of the instrument, will be found to be perfect octahedra.

In a large series of experiments, after the manner in which this test is ordinarily applied for the detection of arsenic, we in no instance obtained from antimony a sublimate that could not readily be distinguished from a pure arsenical deposit; yet it must be borne in mind that, under certain conditions, it is possible to obtain from antimony a sublimate consisting largely, if not wholly, of octahedral crystals, and presenting to the naked eye the sparkling appearance usually presented by the arsenical sublimate. In the instance already mentioned, in which large groups of prismatic needles were obtained, very many octahedra were interspersed among the prisms.

From the foregoing statements it is obvious that the mere production of octahedral crystals by this test is not, in itself, conclusive proof of the presence of arsenic. When examining this test in the preparation of the *Micro-Chemistry of Poisons*, we in a few instances observed minute octahedra, which at the time were attributed to the presence of a trace of arsenic in the antimony compound employed. The entire absence of that metal in the present experiments was fully established.

We also find that the deposit of metallic antimony formed in the exit-tube of a Marsh apparatus by decomposing antimonuretted hydrogen by heat, may, when the tube is detached and the deposit again heated, be in part at least converted into octahedral crystals of the oxide.

If pure antimonic oxide be vapourized in a small tube, the sublimate usually contains octahedral crystals, but sometimes crystalline needles. According to our experiments, octahedra are much more likely to be present than needles; the opposite result, however, is stated by several writers.

Our experience has confirmed the observation first made by Mitcherlich, that when a solution of tartar emetic is decomposed by excess of ammonia, the precipitated antimonic oxide is after a time converted, in part at least, into minute octahedra.

Another fallacy that may be mentioned in this connection, although first pointed out some years since by Reinsch, is that of *sulphurous acid.* If this acid, either in its free state or as an alkaline sulphite, be present with bright copper foil, on heating the acidulated mixture, or even if sulphurous acid be present in comparatively large quantity, without the application of heat, the copper receives a deposit or coating which in appearance may not be unlike that produced by arsenic. This coating may, after a time, become detached in the form of metallic-like flakes. We find these detached flakes to be a definite sulphuret of copper in the proportion of two atoms of the metal with one atom of sulphur, Cu_2S.

If the coated copper be heated in a reduction-tube, a portion of the sulphur may be volatilized and condense in the upper portion of the tube. In no instance, however, did we obtain a sublimate that could be mistaken for that from arsenic by an observer having even only a limited experience with the appearance of the arsenical sublimate.

Since sulphurous acid is frequently employed in the examination of suspected organic mixtures as a reducing agent, it is important to bear in mind that the acid may thus produce a deposit on copper; especially as a sulphur deposit of this kind may greatly interfere with obtaining satisfactory results from arsenic itself when present only in minute quantity.

When present in its free state, sulphurous acid is rather readily expelled from a solution by heat; but when present as an alkaline sulphite, it requires the prolonged action of heat for its entire expulsion, even in the presence of a free mineral acid.

PHILADELPHIA, Sept. 1, 1877.

ARTICLE VIII.

A CONTRIBUTION TO THE ANATOMY OF THE HUMAN RETINA.

By W. F. NORRIS, A.M., M.D., Clinical Professor of Ophthalmology in the University of Pennsylvania, and E. O. SHAKESPEARE, A. M., M.D., Lecturer on Refraction and Accommodation and Operative Ophthalmic Surgery in the University of Pennsylvania.

THE complicated structure of the retina, and its rapid change and disorganization after death have, ever since the introduction of the microscope in medicine, rendered it a favourite field of study for anatomists; but notwithstanding the time and labour devoted to its study by a large number of eminent observers, and the volumes written on its structure, we are still far removed from a distinct understanding of many essential points in its anatomy.

Thus, although the rods and cones of the retina are now almost universally believed to be a sensory epithelium analogous to that found in the inner ear and in the mucous membrane of the nose, and that they are, therefore, the organs on which the images formed by the lenticular apparatus of the eye are projected and received, nevertheless no microscopist claims to have been able to demonstrate the course of any individual nerve-fibre of the retina through its various layers to its termination in any rod or cone; and lately Hannover,[1] who has devoted years to the study of the subject, denies positively that they form any part of the nervous system. We, therefore, believe that every careful study of its structure will be welcomed by all observers, and herewith submit a short account of the appearances presented by some of the inner layers of the human retina.

The retinæ used for study were removed from a young subject, who died of phthisis pulmonalis, and were, therefore, probably healthy, and were removed within four hours after death, and the results thus obtained have been in their main points confirmed by the examination of the posterior halves of eyes (immediately after enucleation), which had been removed on account of disease of the ciliary region.

The Internal Limiting Membrane.—Where such eyes have been opened by an equatorial section, and after removal of the vitreous, the retina *in situ* submitted to the action of a quarter per cent. solution of nitrate of silver, we have found on carefully raising the retina and laying it out in glycerine on a glass slide the following appearances:—

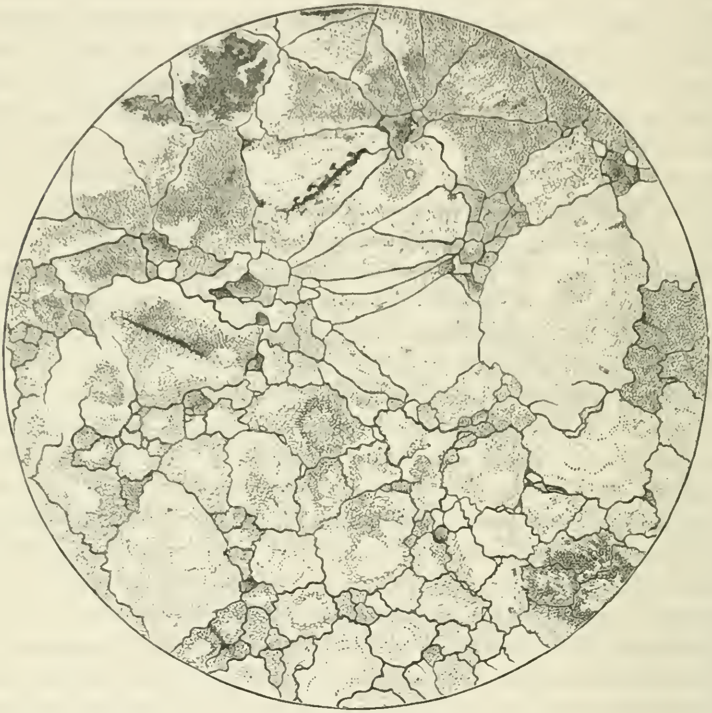
Starting at the entrance of the optic nerve we find the surface of the retina everywhere subdivided by sharp cut black lines, which are evidently the boundaries of flat epithelioid cells. In many cells the protoplasm appears to be finely granular, and some have a distinct, large, round, or oval nucleus. In some places these cells are broad and irregularly polygonal; in others long and narrow, radiating apparently from stomata similar to those observed in the endothelium of serous membranes. We have never in any given specimen been able to follow these cells more than four or five disc diameters from the disc (they often are well preserved on the macular side of this disc), although they probably form a continuous layer over the whole retina. A good representation of them is given in Fig. 1.

Focussing deeper in the preparation we encounter another set of silver lines, which, in varying shape, can always be easily traced over the entire retina. At the margin of the disk, and at the macula they are extremely fine, and inclose small and most irregularly shaped spaces, while in the periphery of the retina the fields inclosed by them are larger and often arranged in whorls, in places more or less resembling the arrangement of an endothelium with stomata. They are always narrower and more elongated over the large bloodvessels. These are evidently identical with the appearances described and figured by Schultze,[1] Retzius,[2] and Schwalbe.[3]

---

[1] La Rétine de l'Homme et des Vertebrés, par Adolphe Hannover, Copenhagen, 1876.

Fig. 1.



Endothelial cells covering inner surface of human retina near optic disk. Markings not essentially different from those upon serous membranes after treatment with silver. *a*. Large, slightly granular endothelial plate containing a characteristic oval nucleus. Preparation silver treated; Hart. Obj. v. Tube out and camera ocular.

The last-mentioned authors deny (as does also Merkel[4]) the presence of any other endothelial-like markings on the surface of the retina. We think that the first described large cells (Fig. 1) with their well-marked protoplasma and nuclei, seen *in situ* above the other smaller markings, present to every impartial observer all the essential characteristics of an endothelium, and herein we agree with the conclusions previously arrived at by Evarts and

---

[1] Virchow's Archiv, vol. xxviii. pp. 482–489.

[2] Nordiskt Medicinskt Arkiv, vol. iii., No. 4, and vol. iii., No. 2 (quoted by Schwalbe).

[3] Græfe und Saemisch, Handbuch der Augenheilkunde, vol i. pp. 369–374.

[4] Klinische Monatsblätter für Augenheilkunde, 1877, pp. 222–223.

Thin.[1] This endothelium presents, with its marked outlines of protoplasm and nuclei, such characteristic appearances that they cannot in any way be confounded with any accidental silver markings. Besides, they present similar appearances in all fresh specimens thus treated, and the same flat cells with their well-marked nuclei may also occasionally be demonstrated by other modes of preparation, sometimes even in diseased eyes. Thus we possess a logwood-stained section of a glaucomatous eye in which they may be seen on the fibre-layer near the disk, and also a section of an eye affected with retinitis pigmentosa, in which a few of these cells with their well-marked carmine-stained nucleus still adhere to the surface of the retina.

Moreover, Hannover[2] has repeatedly seen them in the fresh mammalian retina without any reagent having been employed, and describes them as six-sided cells with a round nucleus.

Concerning the nature of the silver markings identical with those of Schultze, Retzius, and Schwalbe, we cannot agree upon an opinion.

The Nerve-fibre Layer, with its arrangement in anastomosing bundles is beautifully shown by the same method of preparation, but we have nothing essential concerning it to add to the careful descriptions of Schwalbe and Michel.

The Layer of Ganglion Cells.—By still deeper focussing on the same preparations we obtain admirable views of this layer. As is well known, these cells vary very much in size, and are superposed in several layers at the macula lutea, while they form in most other situations a single layer; but while the pictures of this region, published by Hannover, show them still present two to three layers deep at the bottom of the fovea centralis, our preparations show that they gradually die out as they descend the sides of the pit, and in one admirable preparation of this region we have at the very bottom of the pit found only one layer, and in its exact centre a space sufficient for two ordinary sized ganglion cells, in which none could be demonstrated.[3]

The ganglion cells at the macula are usually described as bipolar, but as seen *in situ* by the above method they appear round or oval, sometimes with projections at one end, more rarely at both ends of the cell which, however, can be traced only at very slight distances. With a low power they almost look as if they lay in alveoli with marked walls, but on examining these interspaces with a higher power, the intercellular substance is seen to be resolved into a mass of very fine fibrillæ, which are probably nerve-fibres (Fig. 2).

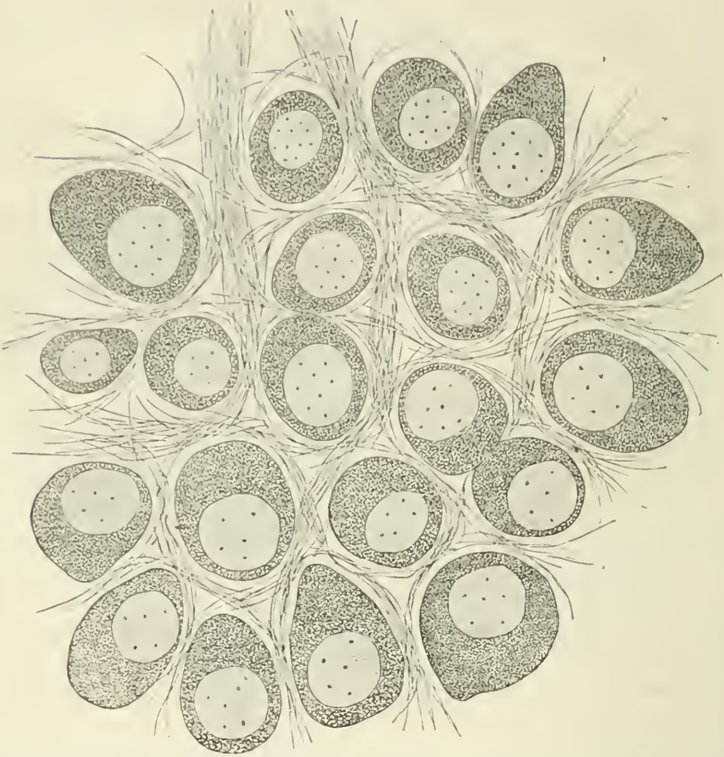
---

[1] Preliminary note on an Epithelial Arrangement in Front of the Retina. Journ. Anat. and Physiol., vol. viii. pp. 353–357. Notes on the Minute Structure of the Retina and Vitreous Humour.—J. C. Ewart. Ibid., vol. ix. pp. 166–168. On the Structure of the Retina.—J. C. Ewart and G. Thin. Ibid., vol. i. pp. 96–108.

[2] Op. cit., p. 129.

[3] H. Müller, Gerammelte Schriften, p. 111, states that at the bottom of the fovea there are still two to three rows of ganglion cells; Henle, Anatomie, vol. ii. p. 667, thinks that the macula everywhere "except perhaps at the very bottom of the fovea centralis" contains at least two to three layers; Schwalbe (Græfe and Saemisch, Handbuch der Augenheilkunde, vol. i. p. 431) says "that on this point literature furnishes the most contradictory assertions, but it is certain that the layer of ganglion cells never entirely disappears, and as shown by Henle, it here unites with the inner granule layer."

Fig. 2.

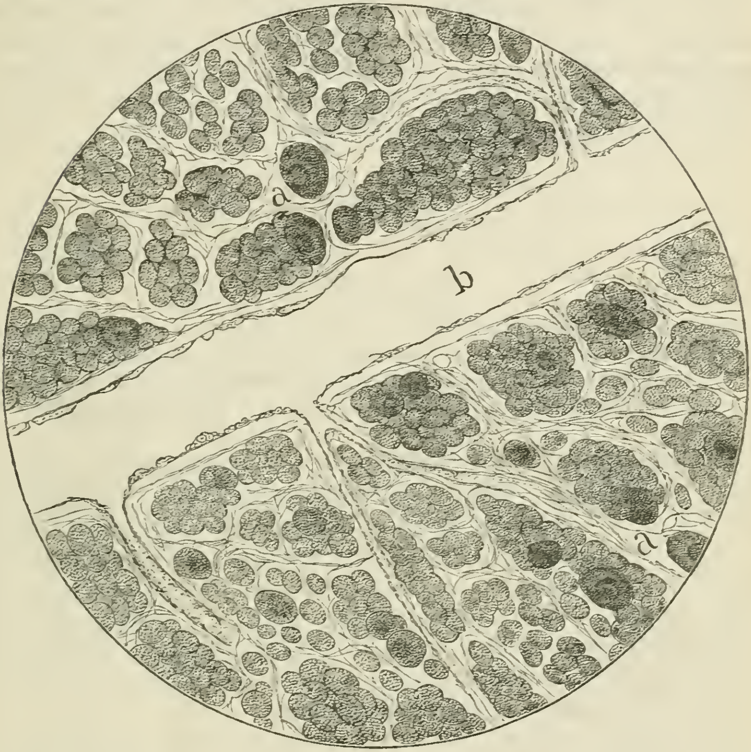


Arrangement of ganglion cells and nerve fibres near centre of fovea centralis retinæ. Human. Silver treated; Hart. Obj. xi. à im. Tube out and camera ocular.

In examining the equatorial region of the retina we find that the cells of this layer present most marked varieties in size and appearance. They are here arranged in a single layer, and with a low power appear as if arranged in islands separated by clear lymph channels. Examination with a higher power shows that these channels are occupied by fine capillary vessels, by lymph channels, and by multitudes of exceedingly fine fibres (nerve-fibres?).

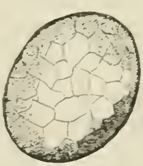
As seen in nitrate of silver preparations the larger cells present the appearance of the ganglion cells of the spinal cord with large nucleus and nucleolus and granular protoplasm, while the smaller ones are invariably stained much deeper by the silver, and in most of them no nucleus is perceptible. This difference in appearance and size of the cells is also seen in specimens double stained by carmine and indigo carmine,[1] but by this method the nuclei are readily demonstrated in the smaller cells, which much resemble the small nuclear elements in the cortical layers of the cerebellum.

Fig. 3.



Shows arrangement of cells of ganglion layer into island groups separated by spaces sometimes containing blood and lymph capillaries and bundles of nerve fibres. Many islands contain one or more large typical ganglion cells (*a*), while the remainder of the cells in the group are the small cells mentioned in the context. Often no large ganglion cell can be seen in a group. *b*. An arteriole which gives off capillary branches running between the islands. Hart. Obj. viii. Tube out and camera ocular.

Fig. 4.



Shows markings on large ganglion cell after silver treatment, probably indicating boundaries between small endothelial plates. This cell is in direct communication with a lymph passage showing silver markings. Hart. xi. à im. Tube out and camera ocular.

---

[1] A New Method of Double Staining, Norris and Shakespeare, Amer. Journ. Med. Sci., Jan. 1877.

The marked difference in structure and size of these cells would seem to point to a probable difference of function. Figure 3 gives a good view of the appearances of the ganglion cells in the equatorial region of the retina, and of their grouping into islands. In a few of the large ganglion cells careful study with immersion lenses shows a very faint set of lines covering the surface of the cell, inclosing very minute irregularly polygonal areas, suggesting the idea of a possible endothelial covering of the cell. A view of these appearances is presented in Fig. 4.

ARTICLE IX.

CASE OF PEMPHIGUS MALIGNUS, IN WHICH ARSENIC TWICE APPEARED TO SAVE LIFE.

By L. DUNCAN BULKLEY, A.M., M.D., Physician to the Skin Department, Demilt Dispensary, New York; Attending Physician for Skin Diseases at the Out-Patient Department of the New York Hospital, etc.

THE case here reported is of especial interest, because on two occasions death, which seemed imminent in the opinion of a number of physicians who saw the case, was very clearly averted by the internal use of arsenic alone, without the aid of any other agent whatever. It is here presented in order to bring as forcibly as possible before the profession the great—if, indeed, it is not a specific—power which arsenic has over pemphigus; for, although this claim has been urged by Jonathan Hutchinson, of London, it has by no means become generally known and recognized to be true in the medical teachings and practice of the day.

Positivisms are so few in number in therapeutics that each accession to the list should be welcomed and duly prized, none the less because it relates to one of the more rare diseases. On a former occasion[1] I had the pleasure of emphasizing the almost specific action of ergot in controlling purpura, a point which I have verified many times since that report; and now I would wish to rank the effect of arsenic in pemphigus by the side of such therapeutical positivisms as that of mercury in syphilis, quinia in malaria, and ergot in purpura.

Pemphigus is, of course, a rare disease, seldom seen even by the specialist, but its acknowledged obstinacy and occasional fatality should lead each one to charge the mind with the fact that on good authority we may believe that arsenic will control it, if properly administered, in a great proportion of the cases. Hutchinson has written repeatedly on the subject, and several have confirmed his experience very fully. I have seen the same beneficial effects from arsenic in four other patients with pemphigus, whom I observed carefully in private practice, which need not be

[1] Practitioner, November, 1876.

here detailed, these five cases comprising my experience of the use of the drug in this disease; that is, it has succeeded in all the cases in which I have prescribed it.

But not to delay longer, I will briefly present the history of the case which forms the subject of report:—

On July 7, 1876, I was asked by Dr. Wm. E. Bullard, one of the visiting physicians of Demilt Dispensary, of New York City, to see, with him, Annie S., aged sixteen years, who presented an eruption of unusual character, and who was fast sinking under it. She gave the history of having had bullæ of small size, appearing on the extremities especially, for nearly a year previous to this date, but the disease had never previously gone on to cause much, if any, depression; much less to endanger life. When first seen she presented the appearance of extreme exhaustion, with rapid and feeble pulse; she was pale and anæmic, with a pinched face. She could take little or no nourishment on account of the condition of the tongue and fauces, as will be described later, and was rapidly passing away.

When first seen she presented some very unusual features for pemphigus, but enough of the elements of the disease to make the diagnosis clear, when taken in connection with the history of the case. On the elbows and on the lower legs were bullæ of from one-third to two-thirds of an inch in diameter, seated on somewhat elevated, reddened bases, and, when these ruptured, they presented the same peculiar characters as were found on first inspection on the face and head. On the face were seen a number of grayish, diphtheritic-looking patches, the site of former bullæ, but now having a very peculiar appearance. I find a similar condition mentioned in Hebra,[1] and, as it is an uncommon feature in this disease, I will describe it a little more in full, inasmuch as this particular form of pemphigus does not appear to be mentioned in the other text-books on the skin. One of the most peculiar of the spots was situated on the margin of the left lower eyelid, which presented what appeared to be an ulcerated surface, half an inch broad by three-quarters wide, so as to partly close the eye, although most of the diseased surface was everted. The surface was level, and covered with a yellowish-gray pultaceous mass, from which there was but little secretion. A somewhat similar patch occupied the left nostril, extending down on to the lip, and two or three others existed on the cheeks and forehead. On the lower legs there were a few bullæ still intact, and a number of patches quite similar in character to those on the face, but more congested, and with more discharge; later similar ones followed the bullæ which developed on the body.

A very remarkable portion of the disease was situated on the end of the tongue. When first seen the patient could hardly speak intelligibly on account of a large ulcerative mass on the end of the tongue, which was greatly swollen and protruded from the mouth, which was kept partially open. She also complained of the throat, and, as far as could be inspected, there seemed to be a condition on the sides of the pharynx much resembling the diphtheritic ulcerations elsewhere. As before stated, she was terribly prostrated, had taken almost no nourishment, and expected death, as did her friends and three other physicians who saw her.

The diagnosis appearing clear to me, I advised that all other medicines should be omitted, and that she should be given Fowler's solution in water, in such a mixture that each ten drops represented one of the arsenical solution. Of this she began with forty drops four times daily, increasing by five drops (or half a drop of Fowler) every other dose or so until seventy, and then eighty drops, or eight of Fowler, were taken four times daily. To some it may appear incredible, but by the time the arsenic had been taken twenty-four hours there was marked improvement visible to all; and, when three days were passed, the whole aspect of the case seemed changed. There seemed to be a load lifted from the system; she felt greatly encouraged, was brighter, talked freely; there was no new formation of bullæ, and the diphtheritic-like patches had all begun to take on a healthy action. The change could be compared to nothing better than the almost marvellous improvement sometimes seen in syphilis soon after the exhibition of mercury for the first time.

---

[1] Lehrbuch der Hautkrankheiten. Zweite Aufl. 1874. Band I. p. 666.

The arsenic was continued in doses of about seven drops of Fowler, three and four times daily, and progressively good results were obtained. On one or two occasions diarrhœa was produced, which ceased with a little opium and astringents, with diminution of the amount of arsenic *per diem*. There was also an irritable and quick pulse, and some irritation of the eyes, which also passed away. No other remedies of any kind were used, nor any stimulant, until later, except a little carbolic acid and zinc ointment to the sores on the legs, which emitted a very offensive odour. A remarkable clinical item was the sloughing of the end of the tongue, from which the whole anterior surface separated, leaving an excavation fully an inch long, very evident, a little to the left of the median line; the surface was raw after it, but gradually became covered with cicatricial membrane, followed by a very distinct, permanent disfiguration.

After the bullæ had ceased to appear, and the patches were entirely healed, leaving deeply pigmented spots, the arsenic was diminished in amount, and was afterwards given in a mixture of bark, iron, and nux vomica, which was ordered to be continued until otherwise directed. But after remaining free from cutaneous trouble for some weeks she neglected it, and was lost sight of until September 21, when I was again asked to see her, and found that there had been some new eruption on the legs, and that there were then some unhealthy ulcerations on them. It was then recorded that the forehead had a number of cicatrices, deeply stained, and on the middle of the upper lip there was a superficial scar, but that no traces of the ulceration on the left eyelid or left nostril could be seen. She was then given the arsenic, bark, and iron mixture, but this failed to check the disease, and soon after I again saw her with more marked pemphigus and with a recurrence of the diphtheroid patches. She now began to complain more of a cough, which had previously given her a little trouble, and she seemed again to be rapidly sinking, being, as before, confined to the bed, and much exhausted.

Again the Fowler's solution was given alone, in water, in larger and increasing doses, as on the former occasion, and after a few days she rallied greatly, and the cutaneous phenomena subsided, alone under the use of the arsenic internally.

But the cough became more troublesome, and she developed the physical and rational signs of phthisis pulmonalis. It may be remarked that the conditions under which she lived were highly conducive to this; she lived and slept in a very badly ventilated room, in a crowded portion of the tenement district; her food was very deficient, it being often nearly impossible for the family to obtain the necessities of life. Moreover, her mother very often took in washing and ironing, so that the room was frequently loaded with the moist, impure emanations from this extra source.

The lung trouble proved too much for the patient to bear, and after a few months she passed away, with the ordinary signs of phthisis, the pemphigus being kept in check by moderate doses of arsenic.

A brief allusion may be made to the history of the use of arsenic as a specific in pemphigus. In 1854 Mr. Jonathan Hutchinson, of London,[1] published anonymously short reports of eighteen cases of pemphigus in the London hospitals, under the care of Dr. Bennett, Mr. Skey, and Mr. Startin, many of which were treated by arsenic, and in at least six of which the remedy seemed to act almost as a specific, controlling the eruption. From these he drew a number of deductions, among which were the following:—

> "Arsenic does not merely repress the eruption but remedys the unknown constitutional causes on which that symptom depends, always very much benefiting the general health of the patient." "Arsenic does not prevent the liability to subsequent attacks, but such attacks are always much less severe than the original one, and tend, if treated by the same remedy, to diminish in intensity on each successive occasion."

In 1859 Dr. Burrows[2] reported a case of chronic pemphigus of five years' duration, in a girl eighteen years old, which was repeatedly cured by arsenic administered internally. In 1861 Mr. Hutchinson[3] recorded eight additional cases under his care and that of Mr. Startin, most of which were treated by arsenic. In one girl, aged seven years, a second attack of pemphigus, which had lasted six weeks, was arrested at once under the use of arsenic, it being noted that she "has not had a single bulla since taking the medicine." On its discontinuance the eruption reappeared in three days, but yielded at once to arsenic again; she remained well for five months, when it recurred, again to cease upon the administration of Fowler's solution.

In 1862 a case was reported under the care of Dr. Ramskill[4] of a boy who had had pemphigus for months, and who had been variously treated for five weeks without effect. He was then given arsenic, and immediate improvement resulted, there being no fresh bullæ, and in one week he was free from eruption, with benefit to his general health as well.

In 1862 Veiel[5] reported a successful case in a woman sixty-three years old, who had had pemphigus for five months before admission. The arsenic was given in substance of pills; there was a relapse, which again yielded to arsenic. Veiel says that arsenic may be regarded as a specific in chronic pemphigus. In 1863 Hillier[6] cured two cases of severe pemphigus with arsenic: one a girl of five years, the other a boy of seven years; in the former case the disease had lasted five months before entering the hospital, and was treated unsuccessfully for two months before the arsenic was given.

---

[1] Medical Times and Gazette, 1854, vol. i. p. 131.

[2] Lancet, 1859, vol. i. p. 158.

[3] Medical Times and Gazette, 1861, vol. i. p. 223.

[4] Medical Times and Gazette, 1862, vol. i. p. 11.

[5] Mittheilungen über die Behandl. der chron. Hautkrankheiten, Stuttgart, 1862, p. 41.

[6] Hillier; Hand-book of Skin Diseases, Philadelphia, 1870.

Hutchinson[1] recorded another favourable case in 1864, in a girl of fourteen years, in which a second attack of pemphigus, which had resisted treatment for several months, yielded at once to arsenic. Habershon[2] in 1865 also contributed a successful case.

In 1868 Dr. Wilks[3] published the case of a boy, aged thirteen years, with pemphigus, in which arsenic was administered alone, with the cure of the case.

In 1872 Dr. Jas. Russell[4] reported two cases where arsenic controlled pemphigus: one was the case of a girl six years old, who had had the disease for two years, with constant fresh attacks, in whom it was checked almost at once by the arsenic, and remained absent during its use, but returned slightly when it was omitted, to be again arrested by it. The second case was in a pregnant woman of thirty-one years, who recovered rapidly from pemphigus under arsenic.

Finally, in 1875, Hutchinson[5] made a third and extended report on the subject, in which the histories of twenty-six cases are given more or less fully; of these, thirteen were detailed in the first report in 1854, and six in the second report in 1861; they were all from his own notes, and mostly under his own care. A number of the cases took arsenic alone, and he considers that the evidence obtained is very conclusive of the specific power which the drug possesses over chronic pemphigus. He says that he has never met with a patient in which the disease resisted this treatment, except in one fatal case, where the mucous membranes were severely involved. In one instance,[6] as in my case, the arsenic appeared to prevent the patient's death.

But he recognizes that cases may occur where arsenic may fail to act, and alludes to the four cases reported by Duckworth,[7] where it seemed to fail entirely; but he afterwards says that the latter authorized him to state his more recent belief in the power of the drug over the disease. Bazin has expressed himself against the utility of arsenic in pemphigus, and Hebra and Neuman in their latest editions still maintain its uselessness.

It is true that we have much yet to learn in regard to pemphigus, and much as to the power which arsenic has over it, but from the evidence here quoted, and from personal experience in the five successful cases thus treated which have been under my care, all of them in private practice, I am convinced that in proper cases of pemphigus arsenic is to be accounted a specific. We must of course isolate pemphigus from the other affections resembling it, from herpes, hydroa, and from the bullous syphiloderm. I have not yet found mention of a single case of the pemphigus foliaceus of Cazenave and Hebra cured by it, and do not know that any effect from arsenic is claimed in that disease. It is highly desirable that the matter should be investigated further, and, as in the case of ergot in purpura, before alluded to, I would call especial attention to the claim that arsenic is a specific in chronic, recurring pemphigus, and invite discussion of the subject and clinical evidence for and against the claim.

---

[1] Medical Times and Gazette, Jan. 1864, p. 10.

[2] Guy's Hospital Reports, 1865, p. 232.

[3] Medical Times and Gazette, 1868, vol. i. p. 286.

[4] Medical Times and Gazette, 1872, vol. i. p. 252.

[5] Medical Times and Gazette, 1875, vol. ii. pp. 461, 513, and 565.

[6] Medical Times and Gazette, 1875, vol. ii. p. 624.

[7] St. Bartholomew's Hospital Reports, vol. viii., 1872, p. 46; vol. ix., 1873, p. 109; and vol. x., 1874, p. 277.

New York, 1 East 33d Street.

Article X.

On Colotomy. By L. McLane Tiffany, B.A. (Cantab.), M.D.,

Professor of Operative Surgery in the University of Maryland.

For many facts in regard to the first of the two cases here reported, I am indebted to the kindness of Dr. J. Shelton Hill, with whom I saw the case, and from whose full manuscript record I have made notes.

Case I.—Feb. 1, 1874, I (J. S. H.) was called to see C. H. D., coloured, stonecutter, aged 43 years. Found the patient lying on his back, knees flexed, thighs drawn up towards abdomen, pulse 48, respiration 12, temperature normal, having a pinched expression of countenance; he was suffering with severe pain in back and abdomen. Vomiting frequent, the ejected matter having a decidedly feculent odour. Hernial protrusion in each groin, oblique inguinal of long-standing, contents of hernial sacs reduced without difficulty, gradually returning with a gurgling sound, not a reduction "en masse." Patient not relieved by returning the gut within the abdomen, saying that he had no trouble in doing it himself. Ordered, Oij of warm water and ʒij of turpentine by injection, remaining to watch effect.

Not more than three ounces could be retained, all above that amount being at once rejected. Next tried to introduce rectal tube and passed it to the depth of four inches; failed in all attempts to introduce it further. I next tried to introduce a No. 10 flexible urethral bougie past the obstruction—obtaining same success as with the larger tube. Digital examination of rectum gave negative results. A catheter passed into the bladder gave exit to three ounces of urine, but furnished no information. I then attached the nozzle of a Davidson's syringe to the distal extremity of the rectal tube, threw in warm water continuously, and attempted to pass the tube beyond the obstruction. When three or four ounces of water had been injected, all above that amount forced itself by the side of the tube through the anus. I then wrapped the rectal tube with towels, pressing them firmly against the anus, and gradually pumped water into the bowel, at the same time gently pressing onward the tube, when the patient exclaimed that something had given way and that he was relieved. The tube could now be passed onward, and after withdrawal the patient had a large free discharge of fecal matter. It appears that constipation had existed for two days only.

Feb. 2. Patient expresses himself as well. The diagnosis made at this time was intussusception or twist of lower colon or rectum.

3*d*. Returned to work.

8*th*. Again called and found patient suffering with general symptoms of intestinal obstruction, which had made their appearance the day before. Pain referred to lower bowel and hypogastric region; abdominal distension very great; vermicular movements of intestines marked; gurgling distinct, accompanied by persistent vomiting and constipation; frequent attempts on the part of the patient to relieve the bowels were accompanied by violent straining. Pulse 85, respiration 15. After vainly trying under chloroform the method of treatment which had been successful in the previous attack, I ordered one grain of opium and three of camphor in pill form every hour until thorough narcotism was produced. Some of the pills being vomited, five hours later, I gave ♏ x of Magendie's sol. of morphia, producing relaxation and comfort.

The above notes are Dr. Hill's.

9*th*. I saw C. H. D. with Dr. Hill for the first time and obtained the history already related. Up to Feb. 1st the patient had "never had a sick day."

The symptoms had not materially changed since Feb. 8, pulse 85, respiration 19, temperature normal. Hypodermic injections of morphia to complete relaxation were continued.

10*th*. Narcotism profound, pupil contracted to a point, symptoms continued unabated. Abdomen more distended than on previous visit. All attempts to pass obstruction or distend rectum by air or water failing, introduction of hand into rectum advised. Comparison of hands showing Dr. Hill's to be the smallest, he attempted to pass his hand through the anus and did so; the small size of the opening, however, and the thickness of the sphincter muscle, sufficed to benumb the hand, so that after, and even during, introduction he could distinguish nothing with the fingers. The hand being withdrawn, flatus at once began to escape. The patient was allowed to recover from the anæsthetic when he expressed himself as completely relieved, and very shortly afterwards had an evacuation from the bowels. My attendance on the case for the present now ceased, but I am informed by Dr. Hill that the patient regained power over the sphincter ani in forty-eight hours after the introduction of the hand. The distension of the rectum by the hand having relieved the obstruction, there appeared to be no reason for a change of diagnosis, and the previous one of intussusception or twist was supposed to have been substantiated.

17*th*. Dr. Hill was again called to see C. H. D., and found him suffering from the same symptoms as in the two former attacks. Hypodermic injections of morphia and enemata failing to relieve, I again saw the case with Dr. Hill on Feb. 18.

19*th*. No material change. Absolute constipation, abdomen distended and tympanitic, great pain referred to hypogastric region, haggard expression of countenance, loss of flesh very apparent since Feb. 9. Pulse and respiration somewhat rapid, number not noted.

For the first time examination by rectum and bladder gave a clue to the proper diagnosis, an inelastic mass, solid, was found to exist between these two viscera. The bladder was pressed upon from above downwards and behind forwards by the mass. There evidently existed a movable growth within the abdomen, presumably omental or mesenteric, which falling against the rectum closed it by direct pressure, and of such a size as to permit of being pushed out of the pelvis on Feb. 1 and Feb. 10, now, however, having increased so as to become wedged. The emaciation of the patient offered testimony to the rapid growth of the tumour. The tympanitic distension of the intestines had always prevented manual exploration of the abdomen from in front, while the benumbing of the hand had prevented Dr. Hill from recognizing anything during the rectal exploration. On Feb. 1 the growth was dislodged by distending the rectum with water; on Feb. 10 direct pressure of the hand was required, while on Feb. 19 no means sufficed to effect the desired removal. The symptoms became progressively worse; abdominal distension excessive, vomiting very frequent, dark, with strong smell of feces (patient confident that he is having passages by the mouth). Large doses of morphia hopodermically were required to afford comparative quiet.

21*st*. The situation was explained to the patient and colotomy recommended as a paliative, which was joyfully accepted. The growth had perceptibly increased.

22*d*. Colotomy by oblique incision performed. The centre of the incision corresponding to a vertical line drawn half an inch posterior to the middle point between the superior iliac spines of the left ilium. The colon came into view where still covered by peritoneum. A longitudinal muscular band was recognized through this membrane. The quadratus lumborum was still further divided transversely for about an inch, the colon rolled forward, and its posterior aspect, uncovered by peritoneum, presented itself to view. It was observed to rise and fall in respiration. The bowel was opened with the usual precautions, and stitched to the skin, silver wire being used. A large amount of wind and fecal matter passed from the opening in the gut.

From the moment the colon was opened vomiting ceased, nor was there any on recovery from the anaesthetic. On recovering, the patient felt smarting from the incision but no other pain, expressing himself as comfortable. The colon united to the skin, and the wound did well. Natural evacuations took place through the artificial anus. Patient eat fairly, suffered no pain, distension of the abdomen disappeared, and vomiting did not recur.

Emaciation was rapid and continuous. The tumour remained fixed in the pelvis, developing quickly and became nodulated. One nodule of the growth projected through each inguinal region in place of the hernia present when first seen. At the time of death each of these nodules was about the size of a duck egg, the covering skin being bright red, smooth, and thin.

On March 7, thirteen days after the operation, during a fit of coughing, the patient felt something give way in the lower part of the abdomen, and in less than an hour died.

Unfortunately the family of deceased declined to permit an autopsy, so that the primary attachment of the neoplasm must remain in doubt. I greatly regretted not having seen the patient when the abdomen was not distended and tympanitic, for then a probable diagnosis on this subject could have been arrived at. The great relief afforded the patient by the operation is worthy of notice.

Case II.—R. H., female, aged thirty-five years, had a sore, presumably chancroid, on posterior vaginal wall, seven years ago (1870). She consulted no physician. Six months later perforation of the recto-vaginal septum took place, with escape of fecal matters by the vagina. Rectal pain, tenesmus, frequent desire to go to stool, and blood-streaked evacuations were experienced, and have continued to the present time. Incidentally she has pursued her trade (prostitute). Some months before I saw her she was operated upon for closure of the recto-vaginal fistula; the operation, however, not being successful. She came under my care in March, 1877; was thin, with a haggard expression, coated tongue, no appetite, much broken in health. There was constant dribbling of thin fecal matter from the vagina, streaked with blood and pus; great pain in rectum; frequent passages of pus, slime, etc., and pieces of solid matter "like pipe-stems," these latter accompanied by violent straining. Examination showed excoriation of external genitals and anus. There existed a recto-vaginal fistula one inch by one inch and a half in size, with ragged, thickened borders, the lower edge one inch within the vagina. The long diameter of the fistula corresponded with the long diameter of the vagina. One-half inch above the fistula there was stricture of the rectum admitting a No. 8 urethral bougie only.

Tonics were ordered; injections of warm water twice daily, and dilatation of the stricture by bougies progressively increased in size. By the end of March the stricture admitted a bougie one inch in diameter, but then became so intolerant of interference as to require a recourse to anæsthetics, to enable the patient to bear the pain consequent upon manual treatment. Under these circumstances, the contraction being three inches from the anus, a rectotome[1] was devised, and the stricture thoroughly divided. The finger could now distinguish, above the site of contraction, a ragged, exceedingly hard condition of the bowel, involving apparently its entire circumference. Great relief followed division of the stricture, and in two weeks (April 20) the patient left hospital.

R. H. re-entered hospital May 15, much worse in health than when discharged in April. There was continuous rectal pain, discharge of blood, pus, etc. Examination showed no return of stricture, but decided increase in ulceration above site of contraction, both in extent and hardness. (Epithelioma?)

May 20. Much weaker. Colotomy advised, and accepted by patient.

23*d*. Operation performed in usual manner. Left lumbar region, oblique incision. Ether administered. No means used to distend colon. The quadratus lumborum was divided transversely to the extent of an inch and a half, and the bowel exposed where uncovered by peritoneum. It was found impossible to roll the gut either inwards or outwards so as to bring a longitudinal muscular band into view, and thereby identify the colon. Recourse was had to the following expedient: the nozzle of a Davidson's syringe was passed into the rectum, the anus closed by pressing a towel firmly against it, and then warm water injected; the gut, lying at the bottom of the lumbar wound, was seen to swell, and, being pinched up in the fingers, fluid was distinctly felt passing, together with an occasional lump of fecal matter. On allowing the water to escape from the anus, the gut collapsed. The bowel was secured, opened, and stitched to the skin. One small vessel required a ligature. Before opening the colon it was watched, and observed to fall and rise with expiration and inspiration; the amount of motion was quite the third of an inch. The poles of a battery were applied to the gut before opening, hoping to bring a muscular band into view, but fruitlessly. A very superficial attack of erysipelas appeared on the third day, but disappeared by the fifth.

---

[1] Transactions of Med. and Chirurg. Faculty of Maryland, 1877, p. 75.

On the second and fourth days the evening temperature rose to 100.5°; during the fifth day the temperature stood at 96°; afterwards normal. With these exceptions recovery was uninterrupted. Oakum dressing. On the fourteenth day some pain was present; an injection of warm water given by artificial anus brought away hardened fecal matter from transverse colon, and afforded relief. The lower colon and rectum was flushed twice daily from the loin with water containing salicylic acid in solution. This injection was always on exit discoloured, and smelt of decomposing animal matter. Prolapse of inner wall of bowel took place gradually, and nothing passed into the colon below the wound from the gut above. Pain and straining disappeared at once after the operation, appetite has returned, and comparative comfort secured.

Aug. 2. The colon is firmly united to skin. There is prolapse of the inner wall of colon preventing passage of fecal matters into lower canal. Above and below prolapsed wall (éperon) the openings into colon are seen. Examination by rectum shows no return of stricture, but decided increase in hardness and extent above site of former contraction; undoubtedly a malignant growth exists, and death is a question of time. The patient has gained flesh, strength, and is able to go about and attend to the general affairs of life.

In both the above cases the oblique incision was made, the centre corresponding to a vertical line drawn half an inch posterior to the superior iliac spines on the left side. The gut in Case I. came into view, peritoneum intervening, and the quadratus lumborum was still further divided posteriorly, to avoid wounding this membrane. In Case II. the quadratus lumborum was extensively divided before the gut was sought for, and no peritoneum was seen at all. In this patient the colon was empty. I find from a number of dissections that the vertical line, drawn as indicated, will correspond very nearly to the anterior reflexion of the peritoneum from the belly wall to the colon if the bowel is moderately distended. If, however, the bowel is empty and collapsed, a stylet passed into the colon at this line, in nine cases out of ten, wounds the peritoneum. I have found the colon to lie behind this line more often in women than in men. The method pursued in Case II., of exposing the gut when collapsed, filling it with water, the finger resting on it meantime, and allowing it to again become empty by the escape of the injection, seems to offer certain means for recognizing the colon, and might be adduced as an additional reason why the operation should be resorted to before the bowel is entirely obstructed.

In both cases the colon was carefully watched, and seen to rise and fall with respiration, contrary to the usually accepted dictum.

The bowel in Case II. could not be rolled over so as to bring a longitudinal band into view; subsequent dead-house work shows that this may be the product of several factors. 1. The bowel was exposed where not covered by serous membrane. The nearer the colon is exposed to one of the peritoneal reflexions so much the nearer does a muscular band lie to the point under observation, for two of the bands correspond to the peritoneal reflexions. The appearance of a band will warn the surgeon which way *not* to cut. 2. The bowel was empty. It is difficult to roll an empty colon on its long axis so as to bring a band into view if the gut be exposed midway between the peritoneal reflexions. 3. The bowel was closely attached to the back of the abdomen. The attachment of the descending colon to the abdominal parietes varies greatly in different subjects. Sometimes the amount of fat between the quadratus lumborum will be very great, while again it may consist of but a thin layer; I have never found it entirely absent. I am inclined to think that the relation between the descending colon and quadratus lumborum muscle is more constant when the bowel is empty rather than when it is distended. My observations on this point are, however, but few in number, and very inconclusive. In Case I. the peritoneum was cut down upon, but avoided. Two anatomical peculiarities enabled me to recognize this membrane when my knife approached it: 1, a sudden increase in the density of the connective tissue, and at the same time there came into view, 2, a plexus of fine vessels, bleeding freely at a touch of the knife. I had been previously dividing, of course, the subperitoneal fat, and the change in tissue was marked. The relation between the colon and the kidney is worth noting, for the kidney can always be felt through the subperitoneal fat as soon as the muscles are divided.

It is scarcely necessary to call attention to the very great relief experienced by the two patients recorded, after the operation, and urge that recourse be had to colotomy in certain affections of the lower bowel, where, while we cannot cure, we can give relief from intense suffering with but moderate risk.

ARTICLE XI.

THE TREATMENT OF TRAUMATIC TETANUS BY HYDRATE OF CHLORAL. By JOHN B. ROBERTS, M.D., of Philadelphia.

NOTWITHSTANDING the great advances made in modern therapeutics, traumatic tetanus, as few other diseases, continues to baffle surgical skill as it did in times long gone by, and annually carries numberless victims to the grave. For this not uncommon disease almost every remedy has been tried and found wanting, and it remains for the future to show us some cure that will relieve the unfortunate patients attacked by this destroyer of life. Much has been said of late as to the efficacy of chloral in cases of traumatic tetanus, and it is my intention to add to the literature of the subject a few cases in which cure, whether as a direct result of the treatment or not, certainly took place during the administration of this drug.

The prognosis in traumatic tetanus may be looked upon as always unfavourable, for Gross says that the chances of effecting good "when the malady is fairly established are very slender in any case, however mild."[1] In Holmes's *Surgery* this sentence occurs: "In acute traumatic cases the prognosis is most unfavourable, and there is scarcely a well-authenticated instance of recovery on record."[2] Such being the character of the disorder with which we have to grapple, it must be acknowledged that to a remedy under which several successive cases recover there must be accorded a certain modicum of honour.

Dr. J. R. Beck has collected[3] 36 cases of traumatic tetanus treated essentially by chloral, in which a recovery took place in twenty-one instances; while Dr. H. C. Wood has tabulated[4] 18 additional cases resulting in 9 recoveries and 9 deaths. In the *Practitioner* for November, 1872, Dr. Macnamara, of Calcutta, gives his experience in tetanus among the natives, and says that he treats them by giving forty grains of chloral at bedtime, and by providing proper diet of a nourishing kind. In severe cases an additional thirty-grain dose is given at midday. Out of 20 successive cases 17 recovered. Though these cases were probably idiopathic in many instances, the testimony is nevertheless valuable. Within a few years the medical journals have been constantly reporting cases of recovery from tetanus under the use of chloral, but isolated cases have their value diminished because the fatal cases are not so likely to appear in print. Nevertheless the fact remains that many cases of traumatic tetanus have recovered while such treatment has been employed. The drug has been introduced into the system by various channels; M. Oré has treated cases of tetanus, though, I believe, unsuccessfully, by intravenous injections of hydrate of chloral;[5] while success has followed its administration hypodermically in acute traumatic tetanus,[6] and it is stated that a case recovered where chloral in conjunction with bromide of potassium was given by enema.[7] Dr. Agelastos, of Bucharest, believes that he prevents the occurrence of locked-jaw in traumatic cases by the timely employ of chloral.[8] Verneuil says that chloral allays the muscular contractions, and especially those of the respiratory apparatus, which in the last stages of the disease cause asphyxia; and that it changes the acute into the chronic form of the disease. He gives instances of cure where the patients took 100 grains and 245 grains daily without any bad symptoms. The first of these tetanic patients recovered after thirty days, having been given ℥vj of chloral during that space of time.[9] Hence it is seen that there is a good deal of evidence supporting the theory of the efficacy of this drug in the treatment of tetanus.

[1] System of Surgery, vol. i. p. 644.

[2] Vol. i. p. 327.

[3] St. Louis Medical and Surgical Journal, June, 1872.

[4] Treatise on Therapeutics, pp. 292–293.

[5] Practitioner, August, 1877.

[6] American Journ. of Med. Sciences, April, 1877, p. 534.

[7] Hospital Gazette, New York, April, 1877, p. 15, from London Lancet.

[8] New York Med. Journ., April, 1877, p. 436.

[9] New York Med. Journ., 1876, p. 97.

While having charge, as Resident Surgeon, of Dr. R. J. Levis's ward of the Pennsylvania Hospital, I had the care of four cases of traumatic tetanus, all of which were treated by Dr. Levis with hydrate of chloral; of this number three recovered, and one died. On looking over the Hospital Notes from April 1, 1873, to April 1, 1877, a period of four years, I find nineteen cases of traumatic tetanus treated. Of these patients 16 died and 3 recovered, which were the three cases mentioned above as treated successfully by chloral. Below is given a schedule of the cases with an epitome of the treatment. Some of them were given tonics and stimulants in addition, but, in order to avoid complication, the treatment directed especially to the tetanic symptoms is alone mentioned.

Cases of Traumatic Tetanus occurring in the Pennsylvania Hospital from April 1, 1873, *to April* 1, 1877.

No.	Month of occurrence.	Sex.	Age.	Injury.	Treatment.	Day death occurred after advent of tetanus.	Result.
1	May 1873	M.	24	Lacerations of scalp and knee, burrowing of pus	Morphia	2d	Death.
2	June 1873	"	31	Amputation at shoulder, erysipelas	Conia	3d	Death.
3	June 1874	"	27	Burns of face, neck, arm	Atropia.[1] Emplastrum conii to back	9th	Death.
4	July 1874	"	19	Amputation of arm for gangrene from injury	Atropia, Tr. of belladonna	4th	Death.
5	July 1874	"	10	Fracture of femur and forearm, lacerations	Atropia, Tr. of cannabis Indica	7th	Death.
6	Aug. 1874	"	15	Laceration of hand	Opium, Tr. of physostigma	10th	Death.
7	Oct. 1874	"	47	Railroad crush of thigh	Opium, commenced before tetanus occurred	3d	Death.
8	Sept. 1874	"	19	Gunshot wound of arm	Chloral		Recovery.
9	Nov. 1874	"	5	Burns of body and arm	Chloral	7th	Death.
10	Nov. 1874	"	7	Fracture of arm, laceration of thigh	Opium, Bromide of potassium	3d	Death.
11	Nov. 1875	"	35	Compound fracture of elbow (resection)	Chloral	4th	Death.
12	Nov. 1875	"	45	Lacerated and contused finger (admitted with tetanus)	Chloral		Recovery.
13	Nov. 1875	"	12	Pirogoff amputation (primary)	Opium, Calomel, Conium	2d	Death.
14	Feb. 1876	"	21	Gangrene from railroad contusion of the knee	Opium, Atropia	2d	Death.
15	July 1876	"	57	Pirogoff amputation of foot (secondary)	Chloral (?)	(?)	Death.
16	Jan. 1876	"	11	Railroad crush of feet	Opium, Atropia	6th	Death.
17	Nov. 1876	"	20	Gunshot wound of axilla	Chloral		Recovery.
18	May 1876	"	22	Amputation of leg for necrosis of ankle	Atropia, Morphia, Bromide of ammonium	4th	Death.
19	Sept. 1876	"	21	Burns of arms and face	Morphia, Chloral on last day	2d	Death.

Total—Deaths 16, Recoveries 3.

In this table there are nineteen cases, and in six of them chloral constistituted the treatment of the tetanic complication, while in No. 19 it was commenced a short time before death. The 3d case is not considered an instance of chloral treatment, because the evidence seems to show that the other remedies were those directed for the cure of the disease, and that chloral was administered incidentally only at the beginning of the symptoms of tetanus. It is of course understood that some of these cases were of the most severe type, while others were much milder; but the fact is that only three of the 19 cases recovered, and that these were treated with chloral. One and perhaps two of those who recovered would be considered severe cases, while the other was of a mild subacute form; but it is impossible at this late date to say how many of the fatal cases were instances of mild traumatic tetanus. Again, it is impossible to determine in how great a degree the chloral may have assisted in preventing much more severe paroxysms than actually occurred in the cases in which it was employed. I shall give the full notes of the four successive cases treated in Dr. Levis's ward, in order that the character of the disease in each instance may be fully appreciated; for it is not to give undue credit to chloral that this article is written, but to show that in a series of cases treated by various drugs the patients who recovered were each treated by chloral. Hence if those to whom other remedies were administered died without exception, would it not be well for the profession generally to give hydrate of chloral a thorough trial in traumatic tetanus? It at least can give no worse results than other remedies, and really seems to give promise of affording better.

---

[1] In this case chloral is mentioned as the treatment on the first day, but no note regarding it follows; hence it was probably suspended as the other drugs were employed.

Case I.—The first case, which was reported in the *Phila. Medical Times*, Dec. 12, 1874, was a boy aged 19 years, admitted September 26, 1874, who was injured while gunning by the load from a fowling piece, tearing away the inner side of the left arm and forearm, for about six inches. The shot and wadding were buried in the tissues, which in a few days assumed an erysipelatous condition, so that the limb became exceedingly swollen, and gave the patient a great deal of pain. The treatment adopted was tonics internally, and local applications, first of carbolized oil, later of lead-water and laudanum; while free exit was given to the foreign material which was being discharged from the wound. On the 14th day, tetanus developed with the characteristic physiognomy, the stiffness of the jaws, and the rigidity of the abdominal muscles. These symptoms were followed by pain in the cervical and dorsal regions, opisthotonos, spasms of the muscles of mastication with laceration of the tongue, and retention of urine. He could scarcely separate his teeth, and was fed on liquids exclusively. At the onset of this complication chloral was prescribed in ten-grain doses every two hours, with occasional doses of morphia when the pain was very severe. The object was to keep the patient thoroughly under the influence of chloral and induce sleep, hence the dose and interval of administration were varied according to indications. The average amount received by the boy during twenty-four hours was one hundred grains. Four days after the advent of tetanus, the arm was laid open with the bistoury and the intermuscular spaces torn up with the finger, to relieve tension, and to remove any portion of clothing or shot that might be imbedded in the wound. The limb was then dressed with a flaxseed poultice. Subsequently, amputation was discussed, but deemed inadvisable at such a length of time after the onset of the tetanic symptoms. The treatment by chloral was steadily continued, and after the lapse of ten weeks the patient was enabled to leave his bed cured. On account of the original injury to the arm, which had not cicatrized, he was not discharged until nearly two months later.

CASE II.—J. P., aged 35, while working in a cellar was buried beneath a portion of falling wall, and sustained a compound fracture of the right olecranon with such laceration of the soft parts that the end of the humerus and the ulna protruded. He also received a simple luxation of the ankle. On admission, he was suffering severely from shock which precluded any operation at the elbow, though, of course, the dislocation at the ankle was immediately reduced. He reacted slowly and pretty well, and on the fifth day resection of the elbow-joint was performed in the ordinary manner. During this time he had been taking stimulants and quinia, and after the operation tincture of the chloride of iron was added. The following evening trismus was observed, and he was immediately placed upon ten grains of chloral every two hours, with a very occasional hypodermic of morphia to relieve pain. The arm, being swollen and discharging freely, was dressed with carbolic acid. The cervical and abdominal muscles were rigid, and the patient at times could scarcely separate his teeth. The day before his death his pulse was 140, respiration 36, temperature 100.8°, and the patient was delirious. The fatal issue occurred on the fourth day after the resection, or the ninth after the receipt of injury; the patient dying, not in a state of spasm, but from gradually increasing exhaustion. The spinal cord was examined after death by Dr. Longstreth, who found the vessels extremely full, almost no fluid in the arachnoid space, slight adhesions between the arachnoid and dura mater, and no evidence of lymph. The cord itself seemed rather lacking in firmness. The severity of the injuries in this case, as evinced by the tardy and somewhat imperfect reaction, render it probable that recovery would have been doubtful, even if tetanus had not supervened.

CASE III.—This patient was admitted after the tetanic spasm had shown itself subsequently to the injury. C. K., aged 45, an ironworker, had, ten days previous to his admission, received a contusion and laceration of the end of the second finger of the right hand, by having it caught under an anvil. The injury had evidently not been severe, for no fracture of the phalanx had occurred, and the laceration of the soft parts was nearly healed when he came to the hospital. Four days previous to this time there was noticed stiffness of the masticatory muscles, and he then found that he had locked-jaw. When he was examined, it was found that the wound was not entirely cicatrized, though it was apparently an insignificant injury. His teeth were tightly closed, and the tongue had been bitten a number of times by the involuntary snapping together of his teeth. There was no stiffness of the posterior cervical muscles. Fifteen grains of chloral hydrate were ordered to be given every hour. The patient was admitted on the evening of November 18, 1875. The following day there was noticed rigidity of the abdominal muscles, which was well marked; but there had been some relaxation of the spasm of the masticatory muscles. The finger was dressed with extract of belladonna, and the chloral administered in doses of ten grains every two hours. On the 21st, it was noted that there was post-cervical rigidity, and that the patient had had a severe spasm in the latter part of the day. He was always rigid, but at times there was an increase of the muscular spasm as is usually the case in tetanus. Accordingly the drug was increased to gr. xv every two hours, day and night; which gave him 180 grains in the 24 hours. This was continued for four days, when the period between the doses was increased to three hours.

Nine days later the chloral was reduced to the small dose of ten grains, three times daily. The patient was improving during this time, as shown by the greater infrequency of the clonic, and the less severe character of the tonic spasms. The diminished dose, however, seemed scarcely sufficient, for on the night of December 6th, which was two days after the last reduction in amount of chloral, the patient complained of considerable rigidity and a good deal of pain. Twenty grains of chloral was administered twice during the night, and next morning the patient stated that relief had been almost immediate. Chloral was therefore given in fifteen-grain doses every three hours for a short time. The symptoms gradually subsided, and the drug was decreased accordingly, until finally it was discontinued altogether. On the 24th of December, thirty-six days after admission, the patient was discharged cured. The extract of belladonna had been used as a dressing to the finger for a considerable time, but, as stated, the injury was almost healed at the time of admission, and therefore required but little attention.

Case IV.—This is an instance of subacute tetanus, which possibly would have recovered on any treatment, because the symptoms were mild and the amount of chloral given small. The history is as follows: J. H., aged twenty years, was injured by his gun, loaded with No. 5 shot, exploding while he sat upon a fence, with the muzzle towards the armpit. The charge entered the inner side of the right axilla, and made a ragged wound, from which the patient says there was profuse hemorrhage. He was admitted the following day, when examination showed a wound in the thoracic side of the right axilla, and made it evident that there was no fracture. There was no shot near the surface of the body, the radial artery was beating, the hand was warm, and sensation seemed good. The pulse was frequent and the temperature high from inflammatory fever. Oxide of zinc ointment was applied to the wound, and a careful watch kept lest hemorrhage should occur. A good deal of bloody pus and sloughing tissue were discharged from the wound, which was washed out daily with antiseptic solutions, and iron and quinia were given internally. Under this line of treatment the discharge diminished, and the patient did well. Fifteen or sixteen days after he was brought to the hospital he had a chill, fever, headache, and some soreness of the throat. During the night he noticed that his jaws suddenly snapped together. This convulsive action of the muscles of the jaw occurred two nights before he mentioned it; and then it was noticed one evening that he could not open his mouth, because of stiffness and the pain induced by the attempt to do so. Chloral was given during the evening in small doses, and the next day (November 26th) the prescription ordered was chloral hydrate grs. x, bromide of potassium grs. xx, three times daily. The following day the bromide was omitted, and the chloral treatment employed alone, except that the tonics were continued which had been ordered early in the history of the case. The symptoms of tetanus were confined to trismus, with the occasional "snapping" at night and slight spasms of the forearm of the wounded side, which once in a while was involuntarily rotated. There was no rigidity of the posterior cervical muscles. On December 8th it is stated in the notes that chloral had been continued in the same dose and manner, with an occasional extra dose at night. The symptoms were decreasing, and there was less snapping together of the jaws. A few days later the drug was stopped, and there was no noticeable trismus and no further spasms at night. From this time the man may be considered cured of tetanus. The wound soon healed, with the exception of a fistulous track which discharged a small amount of limpid fluid, as though connecting with some synovial sac. He was discharged by request in this condition. The elbow-joint could be flexed and extended by the patient, but the hand showed typical wrist-drop, from injury, no doubt, to nerves in the axilla. This paralysis of motion was not determinable at the early examinations, while the arm was yet too painful to be moved. Sensation remained good as it was when the patient was admitted to the hospital.

In this connection I wish to say a word regarding the urine of patients using chloral continuously. A year or so ago Dr. Morris J. Lewis and myself were examining the urine of a former case of diabetes insipidus, and to our astonishment obtained, with Fehling's solution of sulphate of copper, potash, and soda, a yellowish-red precipitate. The result, however, was different, when, having observed that the urine had been brought from the ward in a bottle labelled chloral, we tested a new specimen. This led me to make some experiments with normal urine to which various small quantities of chloral had been added, and I found that in certain proportions a yellowish-red precipitate, very much like that given by saccharine urine, was obtained. Bearing this fact in mind, I determined to test the urine of this last tetanic patient, who was taking chloral grs. x thrice daily, and I found a similar reaction when using Fehling's solution, in the proportion of one part to two of urine. This precipitate, however, was not as red as usually seen in cases of diabetes mellitus. Beale states that chloroform, as well as grape sugar, will reduce the suboxide of copper, but I do not know whether a similar action of the allied drug chloral has been mentioned. Even if the precipitate be not suboxide of copper, the fact that a yellowish deposit occurs seems important to bear in mind, because of the universal use of chloral internally. The fermentation test for sugar would, no doubt, be a proper one to prevent any error in diagnosis.

In this article no attempt has been made to collect the cases of traumatic tetanus that have been reported as cured by chloral, which, by the way, are many; but an impartial statement regarding the results of treatment in the Pennsylvania Hospital has been its object. Woorara has been recommended and employed in this affection, especially in Italy, and a recent journal[1] gives an epitome of thirteen cases of traumatic tetanus collected from various sources, where recovery took place in seven instances under the employ of this drug. Whether chloral or woorara is to take precedence in the highly honourable position to be assigned to the victor over tetanus, or whether a new, more potent, drug is to be born at the hands of chemists, must remain unsettled till further advance is made in the warfare against disease.

1118 ARCH STREET, PHILADELPHIA.

---

[1] N. Y. Med. Journ., June, 1877.

Article XII.

Spasm of the Muscles supplied by the Spinal Accessory Nerve.

By Charles K. Mills, M.D., Lecturer on Electro-Therapeutics in the University of Pennsylvania; Chief of the Dispensary for Nervous Diseases, University Hospital.

The sterno-cleido-mastoid and trapezius muscles are supplied by the spinal accessory nerve of Willis, and spasm of these muscles, or spasmodic torticollis, is a not uncommon affection. The spasm may be either clonic or tonic, or the two forms may alternate in the same case. Owing to the peculiar origin, course, and distribution of the spinal accessory, influences widely separated and differing in nature may produce the disorder. The nerve, it will be remembered, is called spinal, because it arises in large part from the lateral columns of the cord as low down as the sixth cervical nerve. Its many spinal filaments uniting, ascend and enter the posterior lacerated foramen to join the pneumogastric, a portion continuing with the latter. It receives additional filaments from the medulla oblongata, and its main trunk passes downwards and outwards to supply the sterno-cleido-mastoid and trapezius muscles. The deep origin of some of the filaments of the accessorius may be traced into the gray substance of the floor of the fourth ventricle. It has branches of communication high up with the pneumogastric; in the sterno-cleido-mastoid muscle with branches of the cervical plexus; and in the posterior triangular space with the third and fourth cervical nerves. It is chiefly a motor nerve, but may contain some sensory fibres. From a brief consideration of these anatomical facts, it will be seen that the sources of the spasm might include spinal or cranial lesions or irritants; reflex irritation communicated by the pneumogastric or other channels; agents directly affecting the nerve in its course; or causes acting on the muscles or on the nerve-ends in the muscles. The intimate connection of the spinal accessory with the vagus should be prominently before the mind, especially when considering the question of reflex causation. Its relations, direct or indirect, with the glosso-pharyngeal, the various laryngeal, the hypoglossal, and the sympathetic nerves, should also not be forgotten.

The literature of the subject of spasm of the muscles supplied by the spinal accessory is not very extensive. Here and there a case is found in works on the nervous system and on orthopædics. Erb, in his treatise on the Peripheral Cerebro-Spinal Nerves, volume xi. of Ziemssen's Cyclopædia of the Practice of Medicine, has a good article, preceded by a brief bibliography, mainly German and French. Niemeyer (Text-Book of Practical Medicine, vol. ii. pp. 318–19) devotes a couple of pages to the subject. C. Handfield Jones, in his Studies on Functional Nervous Disorders, gives several cases. Althaus, Beard, and Rockwell, and other English and American writers on Electro-Therapeutics mention cases and discuss the electrical treatment of the affection. Cases, which will be referred to hereafter, are also recorded by Poore, Dupuy, and others.

I will give several cases of spastic torticollis, followed by remarks on the symptomatology, etiology, diagnosis, prognosis, and treatment of the disorder; based partly upon a consideration of the cases, and partly upon a general study of the subject.

Case I. C. D., æt. 25, ten weeks before applying for treatment, while in a hot room attending a prayer-meeting, was attacked with a spasmodic jerking of the head. He was compelled to go to bed, where he remained for two weeks, the movements of the head continuing for ten days, when they ceased and did not return until three days before coming under observation. On both occasions the attacks were preceded for a couple of hours by a feeling of intense hunger, and severe right hemicrania.

On presenting himself, the patient was weak, nervous, and haggard-looking. He had clonic spasm chiefly of the right sterno-cleido-mastoid muscle, but when severe including the trapezius. The face was vehemently twisted to the left, the chin being thrown upwards. The head was drawn downwards and to the right, the right shoulder and arm being somewhat raised. When the movement was most violent he complained of a pain in the throat, from which issued a bubbling sound. The spasms sometimes amounted to fifty and upwards in a minute. Loud noises, excitement, worriment, and a heated room aggravated the disorder. The spasms disappeared during sleep. Decided tenderness was found over the third, fourth, and fifth cervical vertebræ, and also over the liver, stomach, and spleen; pressure over these parts increasing the spasm.

The only family history obtained was that the father of the patient had been for many years before his death a great sufferer from asthma.

By pressing firmly and deeply in front of and under the right sterno-cleido-mastoid muscle the spasms could be stopped, but the pressure could not be long sustained owing to the pain which it caused.

For the notes of treatment of this case I am largely indebted to Dr. Geo. L. Hall, formerly resident physician in the Hospital of the University of Pennsylvania, the patient having been, for a portion of the time under my observation, an inmate of the hospital, in the wards of Professor H. C. Wood.

The treatment extended over a period of two months, the remedies used during that time being somewhat numerous, but nearly all of a tonic and antispasmodic character. Galvanization was only tried once; either the application or the excitement produced by making it causing an aggravation of all the symptoms. The actual cautery was applied to the back of the neck three times. In about half an hour after each application the spasms would cease, and would not return for several hours; but when first used the spasm increased in violence, apparently from fright and nervousness.

Blisters applied over the affected muscles, and large mustard poultices placed over the tender abdominal regions, afforded considerable relief.

Bromide of potassium, in doses of from ten to twenty grains, repeated every hour, would control the spasm; but unpleasant effects were produced in a short time, the bowels becoming deranged, and symptoms of brominism showing themselves, so that it became necessary to stop this remedy. Chloral, in doses of twenty grains, would relieve, and sometimes check, the spasm.

Inhalations of nitrite of amyl at first would suddenly increase the spasms, but soon would diminish and effectually halt them. They had a peculiar psychical effect upon the patient. He would always have a spell of crying, and seem bewildered for some time after their use.

Hypodermic injections of the sulphate of strychnia, beginning with the one-thirtieth of a grain, produced at first no effect; but as they were increased to the one-twentieth of a grain, the spasms diminished in number, but gained in strength, until finally the laryngeal muscles seemed to become involved, causing alarming suffocative attacks, which were promptly relieved by inhalations of the nitrite of amyl.

Once during the course of treatment the patient insisted that he had intestinal worms, stating that he had suffered from them before. Santonine was given in small doses frequently repeated, until its full physiological effects were obtained, when a sudden cessation of the spasms occurred, and they did not return until nearly a day had passed. No worms, however, were brought away.

Hypodermic injections of a combination of sulphate of atropia and morphia were, on the whole, the most beneficial. At first the one ninety-sixth of a grain of the sulphate of atropia, and the one-sixth of the sulphate of morphia were thrown into the affected muscles, and during the first day afforded marked relief. The atropia salt was gradually increased to the one-fiftieth of a grain, by which time the spasms had ceased. The remedy was then slowly diminished.

For constitutional treatment, he was placed on pills of arsenious acid, iron, and quassia; afterwards changed for a mixture of tincture of iron, tincture of quassia, and dilute nitro-muriatic acid. No stimulants were used. His food was easily digestible and nourishing. For a short time he was given only milk, but that in abundance.

The patient had occasional relapses and exacerbations; but progressively improved, and in two months was discharged well.

In an article on Local Spasm, read before the Northern Medical Association of Philadelphia, and published in the *Medical and Surgical Reporter* for August 19, 1876, I gave a partial history of the following interesting case of spasm, chiefly tonic, of the muscles supplied by the spinal accessory. This patient has remained under observation up to the present time. The case was one of the severest type, the violence of the spasm at one period rendering life almost unendurable.

Case II. The patient was a young man, aged twenty-two. Among the remedies vainly tried were iodide and bromide of potassium, arsenic, tonics, nitrite of amyl, hypodermic injections of sulphate of atropia, and of Calabar bean, wet cups, and electricity. After several months of unsuccessful treatment, the actual cautery was applied to the back of the neck, with the effect of checking the spasm, and starting a permanent improvement. At first the applications with the cautery were repeated every three or four days, and subsequently at intervals of weeks or months. Superficial burns were made over the cervical spinal region, and over and near the muscles involved in the spasm; the patient thinking that the applications made in the latter regions did him the most good. Nearly two years have elapsed since the cautery was first used. Now and then the disease shows a tendency to relapse, when the patient immediately presents himself for a fresh application of the hot iron. He has been burned in all about two dozen times. When the cautery was first employed, he was also placed upon the bichloride of mercury and iodide of potassium; but these remedies were not persisted with, and the control of the spasm is undoubtedly due to the hot iron.

Generally spasmodic torticollis is an obstinate affection, but a mild form is sometimes seen, as the following case will illustrate:—

CASE III. E. C., æt. 11, presented the peculiar appearance which results from tonic spasm of the right sterno-cleido-mastoid muscle; her head and right ear being drawn slightly downwards and forwards, and the chin turning up, towards the left. The trapezius was not involved. Two or three times in a day she would have a burning sensation in the occipital region, and slight pain in the left sterno-cleido-mastoid muscle, which was also tender to pressure. During four years she had had five similar attacks which lasted two or three weeks, disappearing under treatment. The child was nervous and excitable, but otherwise enjoyed fair general health.

A first cousin of the patient, a little younger than herself, had been affected similarly at intervals; the cousin's first attack slightly preceding that of the patient. Family peculiarity or the possibility of imitation are here at once suggested. The same cousin had had one attack of well-marked chorea.

Belladonna ointment was ordered to be rubbed several times daily into the affected muscle; and ten grains of bromide of potassium three times a day were prescribed. In ten days the patient was well.

The next and last case which I shall give, is put on record because of its interesting features, and not to illustrate any facts in regard to treatment, as the patient has not been sufficiently long under observation to obtain any results.

CASE IV. E. M., æt. 43, was in good health, although not very strong, until three years ago, when she was thrown out of a carriage. She was senseless for a minute or two, but was able the same day to go about as usual, apparently having received no injury, except a few bruises. A few days afterwards, however, she began to have occasionally a slight inclination to throw the face involuntarily towards the left. This tendency got worse and she soon noticed a contraction in the right sterno-cleido-mastoid muscle, which has continued. Now and then, for a few days or even a week, she has improved a little, but, on the whole, she has got steadily worse.

Her present condition is as follows: She carries her head awry. The right side of the face and right ear are drawn downwards towards the clavicle. The sterno-cleido-mastoid muscle of the same side is hard and apparently thickened and shortened. Her head can be readily straightened by an effort of the will, but immediately tends to return to its abnormal position. The left sterno-cleido-mastoid is somewhat atrophied, and measures an inch less than the right. The trapezius does not appear to be involved. The patient does not suffer any pain.

Worriment or mental anxiety makes the spasmodic contraction worse. The patient has had much domestic trouble during a number of years, to which she is inclined to attribute the persistence of the disease with which she is afflicted. When pleasurably excited she is much better. She thinks that no tendency to spasm exists during sleep.

A maternal aunt of the patient had epileptic fits. An older sister, ever since childhood, and particularly when excited, has been subject to attacks of nodding movements of the head. She has five healthy children, has lost one child two days old, and has had two miscarriages. From the patient's account of her husband's condition at one time, he may have had syphilitic disease, but this is uncertain.

In order to support her head, she has made for herself a somewhat ingenious contrivance. A piece of boxwood, curved properly, has one end inserted into a pocket in the back part of her corsets; the other extremity, which is padded, catching the head a little to one side behind. A piece of tape with double ends is attached to this piece of wood about the neck, crossing in front to be tied to a band around the waist.

The treatment advised in this case is myotomy; an apparatus, including an elastic band to reinforce the action of the left sterno-cleido-mastoid muscle; galvanization of the cervical spine and the affected muscle and its supplying nerve; faradization of the antagonistic muscle, and tonics.

These cases have, I trust, been given with sufficient detail and clearness to speak in great measure for themselves. I will indulge, however, in a few words upon some matters of special interest presented by them; and other points will be briefly considered in the remarks upon general heads with which the article will be concluded.

One case was distinctly clonic in character; another was chiefly tonic, but alternated with occasional clonic paroxysms; while two belonged to the tonic form, with more or less persistent contracture. They were all unilateral. The condition of spasm disappeared during sleep. In two of the cases the psychical faculties were morbidly affected. Pain was present in three; in two, pressure points were found in the cervical spinal region. The fact mentioned in regard to Case I., that pressure on the spinal accessory nerve would stop spasm, is suggestive as probably showing that the muscles were thereby cut off from the sources of irritation producing the affection. The spasm of the throat in Case I. is of interest. I learn from Marshall's Physiology (page 266), that on tearing out the spinal accessory nerve of an animal swallowing is interfered with, and when both nerves are torn out the voice ceases, the animal emitting only a bubbling noise; and also that extirpation of one accessory nerve causes hoarseness. The intense hunger and the right-sided headaches which preceded the attacks, and the tenderness over the liver, stomach, and spleen, in Case I., point to the probable involvement of the digestive tract and abdominal viscera in the production of the disorder, the morbid stimulus being conducted to the spinal accessory by way of the pneumogastric nerve.

The direction given to the face and head is deserving of brief attention. The sterno-cleido-mastoid muscle, acting singly, draws the head towards the shoulder and clavicle of the same side, while the chin and face are carried towards the opposite side, away from the affected muscle. When both muscles act together, the face and head are bent forward towards the breast. The bulky trapezius has several sets of fibres, which tend to produce movements in different directions. The upper fibres draw the shoulders upwards and backwards, the middle directly backwards, and the lower backwards and downwards. When the trapezius is spasmodically affected, usually the head is pulled backwards and towards the side attacked, while the shoulder is raised and the scapula drawn inwards. The lower fibres are vanquished by the others, when all are acting under the same stimulus. It happens rarely that the middle and lower fasciculi are chiefly affected, in which case the scapula is rotated and fixed firmly. If the sterno-cleido-mastoid and trapezius muscles are attacked coincidently with spasm, the movements already described as belonging to each muscle are combined or alternate. Bilateral spasm of the muscles supplied by the accessorius is not common, and when it does occur, is a most striking and curious affection, causing peculiar alternate or synchronous movements of the head—a form of the nodding or salaam convulsions particularly observed in children.

The remarks made apply to cases both of clonic and tonic spasm. In the latter, however, the parts retain with more or less fixedness the positions given by the overacting muscles; while in the former a to-and-fro movement is kept up, the direction of which is determined by the mode of action of the muscles.

Hereditary influence probably plays an important part as a predisposing cause of spasmodic torticollis. The father of Case I. had been an asthmatic. A first cousin of Case III. had had chorea, and suffered also from sterno-cleido-mastoid spasm. An elder sister of Case IV. had a mild form of salaam convulsion, and a maternal aunt had been an epileptic. In Case II. only was no neurotic family history obtained, and in this instance it may have been overlooked or forgotten, as not infrequently happens.

Worry, anxiety, overwork, emotion, or impure atmosphere, may act as exciting causes. Catching cold is a frequent cause of rheumatic torticollis, but is not, I think, of the spastic form which I am now considering. It sometimes follows exhausting diseases, such as typhoid fever, and it makes its appearance in the puerperal state. Syphilitic disease of centres, bones, or nerves, and reflex irritations of diverse character may act as causes.

Local muscular fatigue may be a cause of spinal accessory spasm. Much attention has been directed during the last few years to the subject of chronic muscular fatigue, and its agency in producing local spasm, especially by Dr. George Vivian Poore, in the *Practitioner* and *Lancet*, and in a valuable book on Electricity in Medicine and Surgery. In the *Lancet* for October 11, 1873, a case of clonic torticollis is reported by Dr. Poore. The patient had been much worried, and worked hard with the needle, holding a heavy material in her left hand. She began to have pain in the left arm, and eventually was attacked with violent clonic spasms of the left sterno-cleido-mastoid and trapezius muscles: the proximate cause of which, according to Dr. Poore, was the tiring out of the muscles which support the left clavicular arch. Such cases are supposed to be similar to writers' spasm and allied affections.

The phenomena of clonic torticollis, if at all severe, are so peculiar that its diagnosis is unattended with difficulty. Tonic spasm of the muscles of one side must be discriminated from paralysis of the muscles of the other. The form of tonic spasm alluded to in the present article must also be distinguished from rheumatic torticollis. In the rheumatic form motion of the affected muscles is painful; in the true spastic, the head may be straightened with an effort, or by force, with little or no pain. In the purely spasmodic affection, likewise, the tonic spasm is apt to have been preceded by or to alternate with clonic spasm; in rheumatic wry-neck the parts remain constantly more or less rigid. Apparent or temporary torticollis, which may be mistaken for the real disorder, may be caused by diplopia or double vision. I have seen this in a case of diphtheritic paralysis. Retro-pharyngeal or laryngeal abscesses might be mistaken for spasmodic torticollis, but the constitutional symptoms and careful examination will prevent this error.

The prognosis depends, of course, in great measure, upon the lesion at the root of the trouble. It is usually considered very unfavourable; but with the means of treatment to which I have called, or will call, attention, cures may be effected in some instances.

In the treatment nourishing diet and tonics are often required, especially in cases suffering from general or local exhaustion. Cod-liver oil is sometimes of service. Dialyzed iron and other ferrated preparations may be administered freely in anæmic patients; and arsenic, in increasing doses, should be given a full trial. If a syphilitic history is discovered, iodide of potassium and mercury should be pushed. All sources of reflex irritation, gastric, hepatic, intestinal, uterine, etc., should, if possible, be removed. In short, constitutional and causal indications should first be met.

At the head of the methods of direct treatment I place the actual cautery. The only serious objection to its use is the dread in which it is held by patients or their friends; but this can generally be overcome. This treatment is recommended by high authority. Busch, as stated by Erb, cured three cases by means of the cautery. The applications were made deeply to each side of the spinal column in the cervical region, suppuration being afterwards maintained for some weeks. Brown-Séquard is an eminent advocate of the actual cautery in spasmodic affections. Dupuy, in an article on the Actual Cautery in Spasms, Paralysis, and Epilepsy (*New York Medical Journal*, January, 1877), gives a case of spasmodic torticollis radically cured by six applications over the affected muscles. In one of my cases it was successful after all other remedies had failed; in another it afforded relief shortly after each burning. I prefer the method of Brown-Séquard and Dupuy to that of Busch. The instrument should be shaped like the blunt end of an olive, should be heated to whiteness, and passed rapidly along the skin. No other local derivatives approach in efficacy the actual cautery; but if the hot iron cannot be used, flying blisters, croton oil, sinapisms, setons, or wet cups, might be given a trial.

The electrical treatment of this form of local spasm is a matter of much interest. Moritz Meyer reports a cure in five sittings by faradizing each of the contracted muscles. Niemeyer has tried both faradism and galvanism with negative results. Althaus and Beard and Rockwell report cases treated electrically. In the direct treatment, Erb recommends the immediate resort to electricity. He mentions a number of antispastic methods, which may be successively tried. The anode, for instance, may be kept steadily applied over the accessory nerve; muscular contractions may be repeatedly produced by frequent closure of the current; the current may be passed both longitudinally and transversely through the head and through the vertebral column in the cervical region, in which case the parts in the vicinity of the medulla oblongata, and those near the motor centres in the cerebral hemispheres, may be kept specially in mind; the galvanic current may be applied to the sympathetic in the neck, and to any pressure points that may be discovered; and lastly, gradually increasing faradic currrents may be applied to the nerve and also to the muscles, and ultimately the skin may be irritated by the faradic brush; all these, says Erb, may prove serviceable in particular cases, though only too frequently electro-therapeutic measures are ineffectual. In the case already referred to, reported by Poore, a galvanic current from six to twelve cells was applied, as far as possible, to the entire region supplied by both spinal accessory nerves. At the same time, the muscles were exercised rhythmically. Marked and rapid improvement took place. I have heard from a patient of an instance of the successful treatment of spasm of the sterno-cleido-mastoid by a sort of electrolytic process. Several needles connected with one electrode of a battery of a few cells were inserted into the muscle, and a current allowed to pass for a few minutes. A permanent cure was effected by three applications. On the whole, I think that the electrical methods which promise best, are, in the first place, the application of galvanism to the cervical spine, and to the nerve and muscles affected; and, secondly, faradization of the antagonistic muscles.

Hypodermic injections of the preparations of atropia should be given a fair trial. In Case II. they were boldly pushed without success. In Case I. the hypodermic use of a combination of sulphate of atropia and morphia proved to be the most effectual method of allaying the spasm. I have not tried morphia alone. Hypodermics of Calabar bean were unsuccessful in my hands. Strychnia is not indicated, and might be injurious, as in Case

I. I have had no experience with woorara. Inhalations of the nitrite of amyl should not be neglected. Bromide of potassium is sometimes efficacious in large doses frequently repeated; in fact, it has to be employed so energetically, that generally its use cannot be long continued. Chloral promises well, but has not been thoroughly tested. Nitrate of silver, sulphate or valerianate of zinc, ether, chloroform, narcotic salves, and lotions, thermal baths, rest, and gymnastics, are other measures which have been recommended.

Myotomy, neurotomy, and neurectomy are operations that may be performed for the relief of spasmodic torticollis. Subcutaneous myotomy probably offers the most hope, especially when the sterno-cleido-mastoid muscle is alone affected. Both neurotomy and neurectomy have been employed with success; but in a greater number of instances they have failed. The fact that the spinal accessory is not the only nerve supply to the muscles, chiefly accounts for the failure of the operations; division or resection of the nerve not being sufficient to cut off the muscles from central sources of irritation, I must, therefore, conclude with Erb, that such operations can only be justified in cases where it is possible to demonstrate the existence of causes situated in the trunk of the accessorius itself. An inconvenient partial paralysis may be the result of dividing the nerve.

Apparatus to hold the head in proper position may be of service, if conjoined with other treatment, such as faradization of the antagonistic muscles. A rational orthopædic plan in the case of sterno-cleido-mastoid spasm, is to endeavour to substitute the action of the antagonistic muscle by an elastic strap, which might be attached about the mastoid process to a band passing around the head, and again near the top of the sternum to a yoke. Instruments might do harm, if used alone, by relieving the muscles from all necessity for action.

After the disorder has been apparently cured it exhibits considerable tendency to relapse; but by promptly resorting to treatment—the actual cautery, for instance—the spasm can be held in abeyance, and a permanent cure finally achieved.

ARTICLE XIII.

SARCOMA OF INFERIOR CONSTRICTOR OF THE PHARYNX AND INLET OF THE ŒSOPHAGUS. By S. H. Chapman, A.M., M.D., of New Haven, Connecticut.

The occurrence of sarcoma of the superior extremity of the œsophagus is so infrequent that the following case may present points of general interest:—

On June 29, 1877, I was requested to see a patient with the following history: Mrs. M., forty-five years of age, a mother, tall, spare, of cachectic appearance, and sodden, dark complexion; climacteric reached two years since, with no unusual disturbance of the nervous system or generative organs. Since this period has grown gradually thin and weak, with no developed cause until within the past six months. During the autumn and winter of 1876–77 she observed that food, especially meat, unless well masticated, "stuck in her throat," causing uneasiness until ejected. This peculiar symptom increased in frequency until, in January, she began to suffer intermittent pain in the throat, supposed to be due to sudden chill. This symptom was treated empirically by external applications. The pain increased in severity, until finally it became constant, and of a burning, stabbing, darting character, affecting both sides of the head and neck, although more severe on the right side. Simultaneously with the accession of pain, the difficulty of deglutition increased, until finally, about the 1st of June, not even a few drops of water could be made to pass into the stomach. From this period to the time when I first saw the patient, nourishment had been regularly given per rectum in the shape of beef-tea and brandy.

Another symptom appeared shortly after the difficult deglutition, viz., discharge of a thick, glairy, whitish-yellow material, which was occasionally streaked with blood. This endangered the life of the patient by overflowing into the larynx, and necessitated a constantly erect position and frequent gurgling with some fluid. Family shows no history of constitutional disease in two generations, with the exception of an aunt, who died of tumour of the breast. Her own mother is now living at the age of eighty years. She has had no exhausting uterine or severe constitutional disease.

Condition at time of examination: patient unable to walk without help; very anæmic; respiration hurried; pulse irregular and weak; number of pulsations about 110.

After a rapid and cursory examination of the lungs, revealing no disease, and of the heart, disclosing a systolic bruit which was considered anæmic, and an accentuated second sound, the attention was specially directed to the throat. The latter appeared unusually long and thin, with glandular enlargements, not painful to pressure, on the right but not on the left side.

Examination of the mouth revealed a heavily-coated and foul tongue, and pharyngitis chronica hypertrophica et follicularis. Pressure upon the tongue caused the discharge before described to well up, and a suffocative attack of alarming severity. The laryngoscopical examination showed the epiglottis and larynx to be healthy, but the mucous membrane over the first four tracheal rings to be whitish-gray in colour, and much thickened. The closest questioning gave no history of dyspnœa or hoarseness; the voice was clear, and comparatively strong, and is said to have remained thus throughout her illness. The patient, at my request, attempted to swallow half a teaspoonful of water, then a second and a third; but immediately after the third the entire quantity was ejected, and with it considerable muco-purulent discharge. An immediate microscopical examination of this discharge showed it to be composed of mucus-cells, blood-cells, and especially of cells of great variety of shapes, from the long spindle-cell to the small and large round and oval nucleated, nucleolated, and granular cells in different stages of degeneration.

Exploration of the œsophagus was next attempted. The bougie was felt to enter the inferior constrictor, to pass downwards, with considerable pressure exerted, for about an inch; gliding over on its way a protuberance on the right side, and then to be checked by a hard, resisting surface.

Much pressure caused the head of the instrument to become impacted, but produced intense pain. The withdrawal of the instrument was followed by so profuse a blood-tinged discharge as to make it evident that some pent-up purulent fluid had been set free. This differed from that previously examined in no manner except that it contained more blood-cells, and was in a condition of more progressive degeneration.

The diagnosis of stenosis of the œsophageal inlet from cancerous growth was self-evident; how far downwards the growth extended could not be defined by the examination.

On July 24, after the patient had been kept alive nearly eight weeks by the exhibition of food per rectum, she died of exhaustion.

On July 25, eighteen hours after death, the necropsy was made with the following result: Tissues greatly atrophied; lungs and pleura healthy; pericardium apparently healthy—contained about two ounces of thick yellow serum. Heart about one-third under size; its tissue soft and friable. Left ventricle slightly hypertrophied in comparison with the right; all the valves, except the aortic, normal, but attenuated; the latter was insufficient, and carried vegetations. Ascending portion and first half of the arch of the aorta dilated about one-quarter above normal calibre. In the right ventricle, attached by pedicle to the intra-ventricular septum, was found an irregularly oval, elastic body, about one-half inch long and broad, and one-quarter inch thick, which was composed of elastic and non-elastic fibres and round nucleated cells; the cortical portion was tough and strong, while the interior was soft and friable, and showed fatty degeneration of cells, and diminution of the fibrous elements.

The kidneys were diminished in size; capsules adherent. Microscopical examination disclosed increase of the interstitial, and proliferation and fatty degeneration of the epithelial elements, or the early stage of a combined parenchymatous and interstitial inflammation. Liver somewhat above normal size and consistence, seemed heavier than normal, but was not weighed. On section, the surfaces appeared speckled, gray, and brown beneath a greenish tint. Examination showed that the grayish spots were composed of hypertrophied interlobular tissue within which the vessels were observed, of normal size, but with thickened walls. The intralobular areolar tissue was also much increased, causing diminution in size of the cells, and contraction or obliteration of the intralobular vessels. This thickened tissue was strewn with tissue-cells and granulations. The cells were of an intense yellowish-brown colour, were degenerating, disintegrating, and contained much fat. A similar process to that observed in the kidney seemed, therefore, to be taking place in the liver, although in a still earlier stage of development. No metastatic abscesses were discovered either in the liver, kidneys, or lungs. Stomach and intestines were wasted and anæmic. The former was of the usual length, but contracted towards its centre, having the appearance of a double ovoid. Its interior surface was bathed in a thick brownish fluid, which, when removed, brought into view the mucous membrane raised in immense folds, much softened, and loosely connected to the subjacent and contracted muscular tissue. Gall-bladder, much distended, was not examined.

The substance of the liver and the exterior surface of the stomach and of that portion of the intestines situated in the epigastric and hypochondriac regions were deeply tinged with bile.

No abnormal condition of larynx, epiglottis, or thyroid gland. Mucous membrane of trachea thickened, and of a dull gray colour.

Upon attempting to pass a fine probe into the œsophagus, the canal was discovered to be occluded.

The following is a description of the appearance of the region of the œsophageal inlet from the posterior view after exsection and slitting up the posterior wall of the inferior constrictor and œsophagus:—

The walls of the inferior constrictor and œsophageal inlet are dense in structure, the cut edges irregular in outline and thickness, the latter gradually increasing from a point opposite the superior border of the thyroid cartilage to the inlet, at which point their thickness is at least half an inch. Observed as a whole, it gives the appearance of a section of an inverted cone, with gradually increasing thickness of wall as it approaches the apex. Below the apex the wall rapidly assumes its normal size.

To the left of the cone, opposite the upper half of the thyroid gland, is a tumour about one-half inch in diameter, which is found on section to be of alveolar structure, with dense walls, and to contain muco-purulent fluid in some quantity. The tumour was easily dissected from the thyroid gland, but was intimately united with the wall of the inferior constrictor.

Upon the inner surface of the right wall of the cone, half an inch above the apex, a prominence is seen with an opening in its centre, the mouth of a small sinus communicating through dense tissue with the cavity of a tumour. This extends from above the level of the superior border of the thyroid cartilarge to the apex below, and has a diameter of about one inch. Section gives exit to a large quantity of purulent fluid, and discloses a closed sac with attenuated walls, except towards the constrictor, with whose wall it is intimately united. Below this, on the same side, is seen an irregularly ovoidal mass one and one-half inches long by three-quarters of an inch in diameter, with thick and dense walls, of alveolar structure, containing some fluid, and loosely connected with the œsophageal wall below, but above, merged with the walls of the œsophagus and superior tumour into one solid mass at the apex or point of greatest constriction.

To the right, and a little in front of the carotid artery, there lies another larger gland, two inches long by one inch in diameter, containing some sero-purulent fluid, of alveolar structure, and possessing dense walls. From the foregoing description it is comparatively easy to account for the results of the examination made in June. The point of the bougie glided over the surface of the right superior enlarged gland, passing the mouth of its sinus, and impinged upon the stricture below. When pressure was used some of the contents of this gland escaped by the sinus, and the withdrawal of the instrument caused it to overflow into the larynx and mouth.

Microscopical examination of the fluid obtained from the glands showed it to be composed of fat-globules, granulations, and free nuclei from degenerated cells, round, and small spindle cells, the latter sometimes arranged so as to form alveolæ filled with large nucleated granular cells; long spindle cells containing many round or oval nucleated cells were also observed in considerable quantity.

Tissue from the alveolar partitions or internal surface of the cysts differed from the former in the presence of fibrous tissue filled with round cells in part, and in part with small spindle cells.

Washed specimens showed a high development of fibrous tissue, with proliferation of cells and a gradual change in form from the round to the spindle variety, while the washed-out portion was composed of cells of a great variety of shapes, but especially of large oval granular cells, which had formerly occupied the alveolæ, made by the interlacing fibrous tissue.

Study of the tissues from above downwards towards the apex gave the following results: Epithelium hypertrophied, granular multi-nucleated, at points just within the radius of the disease. Mucosa thickened by growth of connective tissue, bearing round and spindle cells. Submucosa with the character of a sarcomatous tissue. Fibrous and muscular layers apparently not altered. Lower down, epithelium disintegrating or entirely wanting; mucosa transformed into a fibrous spindle and round cell-bearing tissue. Submucosa composed of a dense structure of spindle cells, containing alveolæ filled with large oval cells. Muscular tissue losing striation, and becoming granular. Proliferation of muscular tissue cells. Lower down, nearly opposite the apex, the tissue was composed almost wholly of cells, especially of the short spindle variety, although occasionally an earlier stage of development was observed in the presence of round cells and remains of fibrous tissue. No vessels nor muscular tissue recognizable. The elastic tissue was seen in every specimen, and seemed to be about equally developed, and scarcely altered in character throughout the diseased tissues. The vessels were not studied satisfactorily, except in specimens showing the inroad of the disease. Here they were encircled, and finely defined by the accumulation of round cells.

The pharyngeal glands did not appear to be implicated to a marked degree in the process. Their epithelium was distinctly visible, and not altered in character, their walls not thickened, nor their original contours altered; but no trace of them could be found in the older portions of the diseased mass.

From the above description it seems probable that the disease began in the cellular tissue of the inlet, and progressed both upwards and downwards; from the more general implication of the glands of the right side, and of a more advanced stage of disease in them, it seems probable that the cellular tissue of the right side of the inlet was first diseased; that it extended gradually from this point through the cellular tissue posteriorly to the opposite side, and, as it advanced, made inroads upon or implicated in the process the other elements of the pharyngeal wall and inlet.

From its method of progression and the character of the abnormal products, it seems to be of the sarcomatous variety of cancer. From its slow growth, from the hardness and dryness of its texture, and from the absence of metastatic abscesses, it may be considered to belong to the comparatively innocent sarcomas, death having been produced rather from the accident of its situation than from the violence of its constitutional effect.

Article XIV.

Strangulated Ovarian Hernia; Operation: Recovery.

By G. H. Balleray, M.D., of Paterson, New Jersey.

I was called August 7, 1876, to see Mrs. P., aged 37, who has never borne children, and has been the subject of left oblique inguinal hernia for many years. Several years ago, while the patient lived in England, the hernia became strangulated, and the surgeon who was called in succeeded, after considerable effort, in reducing it by taxis. He then ordered the patient to wear a well-adjusted truss, and advised her to send for a surgeon immediately should the hernia ever again become strangulated. When I was called, I found that the hernia, which had previously been reducible, with the exception of the occasion above mentioned, had "got down," and the most persistent efforts of the patient had not succeeded in "putting it back." I ascertained that this condition of things had existed for four days, that there had been pain at first, with nausea and vomiting, and a feeling of faintness, and that the reason the patient had not sent for me before, was, that she was menstruating at the time, and, from a feeling of false-modesty, did not wish to be examined during the continuance of this function. The bowels had moved two days before I saw her, the tongue was furred, the skin moist, pulse 120 and feeble: there was more or less constant nausea, and a feeling of faintness and prostration, which, according to her description of it, might, I think, be likened to that produced by forcibly squeezing the testicle.

The hernial tumour was large, and seemed to be divided into two portions by a sulcus, the skin covering it was somewhat inflamed and tender to the touch. There was something very peculiar about the feel of the tumour, especially at its lower portion; the sensation communicated to the finger was such as to satisfy me at once that I had to deal with something out of the usual order of things, but as to what the real character of the hernial tumour was, I had no definite idea. I, therefore, requested my friend, Dr. E. J. Marsh, to see the case with me, he did so, and seemed to be as much puzzled as I was; he suggested, however, the possibility of the ovary having found its way into the hernial sac. Taxis having failed to effect the reduction of the hernia, and the patient's condition being critical, both Dr. Marsh and myself were convinced that an operation was imperative, and that it ought to be performed without delay.

Having informed the patient's husband of the result of our deliberations, he requested that we should proceed with the operation at once, if in our judgment it was necessary. Accordingly, with the kind assistance of Drs. Marsh and Rogers, I proceeded to operate. Having cut down to the sac, this was cautiously opened, and about four ounces of brownish-yellow fluid escaped, when to my surprise, there was neither intestine nor omentum to be seen, but the left ovary was found lying near the lower portion of the sac and tightly strangulated by a firm fibrous band, which extended from one wall of the sac to the other, and constricted the ovary at about its upper third. This band was divided, and the ovary liberated; it was found to be very deeply congested, but as its vitality did not seem to be destroyed, I decided, after consultation with my confrères, to return it into the abdominal cavity. The wound was then closed in the usual way, a pad and bandage applied, and the patient put to bed.

She rallied well from the operation and progressed favourably until the third day, when she had a rather severe attack of peritonitis, which yielded, however, in a few days to appropriate treatment, and at the end of the third week she was convalescent. The enterocele returned, however, after she began to walk about, and she has, therefore, been obliged to wear a well-adjusted truss, which enables her to attend to her household duties with a greater degree of comfort than she had enjoyed for years before; as the truss which she had previously worn was a clumsy looking thing, which permitted the hernia to slip down, and by constant friction and irritation of the integument over the rupture, caused a great deal of discomfort.

This case is interesting: 1st. Because cases of its nature are of rare occurrence. 2d. Because the diagnosis must necessarily be doubtful. 3d. On account of the difficulty of arriving at a conclusion, in regard to the propriety of operating in cases of this kind, as there is an absence of those *urgent* symptoms which occur in acute intestinal strangulation, and which justify the surgeon in having recourse, at once, to an operation, if other means fail to effect the reduction of the hernia.

As regards the infrequency of ovarian hernia, I may state, that no reference to a case of this variety of hernia is made in the surgical works of Holmes, Erichsen, Fergusson, Paget, or Gross. In Lawrence *On Ruptures*, no mention is made by the author of a case occurring in his own practice, but he refers to cases which occurred in the practice of Pott and others. But very few cases are to be found reported in the various medical journals.

In January, 1864, Mr. Holmes Coote reported, at a meeting of the Royal Medical and Chirurgical Society, a "case in which the left ovary was found in the sac of an oblique inguinal hernia." A young woman was brought into St. Bartholomew's Hospital with a swelling in the left groin, and suffering from the symptoms of strangulated hernia. In the course of a few hours the usual operation was performed, when the ovary and Fallopian tube were found in the sac. The left ovary was removed, some thickened omentum cut away, and the patient was put to bed; but the sickness and constipation continued, and she died four days after the operation. The cause of the sickness, etc., was displacement of the stomach and transverse arch of the colon. In the discussion which followed the report of this case, Mr. Cæsar Hawkins stated that he had met with two cases, in which the ovary was found in the hernial sac. In one of these, the patient was an elderly woman, and died of peritonitis. In these cases, he thought, the better practice was to leave the ovary in the sac, as its removal was attended with danger.

Dr. Frank H. Hamilton, of New York, assisted by Dr. Terry, collected reports of twelve cases of ovarian hernia occurring in the inguinal region, most of which were operated upon before a diagnosis was made. These cases were published in the *Bellevue Hospital Reports*, 1870, p. 159. Dr. Hamilton himself has seen one example of congenital ovarian inguinal hernia. The late Dr. J. C. Nott met with a case of ovarian hernia at the inguinal ring, in a lady sixty years of age, which, being strangulated, he was able to reduce by taxis. A very interesting case is also reported by Dr. Alfred Meadows in the *Transactions of the Obstetrical Society of London*, vol. iii. p. 438.

In cases of strangulated ovary, the question, as to whether the ovary should, after division of the stricture, be returned into the abdominal cavity or left in the hernial sac, ought, in my judgment, to be determined by the condition of the organ itself. The rule by which the surgeon is governed in the management of strangulated intestine, or omentum, is, I think, applicable to these cases.

According to Hamilton (*Principles and Practice of Surgery*), Neboux, Mulert, and Krieger returned the ovary into the cavity of the abdomen, and their patients got well. Deneux, on the other hand, cut away the ovary, and the patient was well in twenty-nine days. Bérard found both the ovary and Fallopian tube in a sac, which he supposed to be a serous cyst. Having opened it, suppuration ensued, and the patient died.

The method of dealing with the ovary adopted in my own case, was, I think, justified by the result; and in similar cases I would recommend similar treatment. But in cases in which, from long continuance of the strangulation, or excessive tightness of the stricture, the tissues of the ovary either are or are likely to become gangrenous, removal of the organ is, in my opinion, the proper course to pursue.

ARTICLE XV.

A CASE OF SPINAL HEMIPLEGIA. By HENRY JANES, M.D., of Waterbury, Vermont.

ON account of the meagre literature on the subject of spinal hemiplegia, the following case, which lately occurred in my practice, may not be without interest.

Mrs. D., æt. 46, a lady of intelligence and refinement, of nervous temperament, and formerly subject to rather frequent attacks of sick headache, but otherwise healthy, had been married about a month, and had passed her menstrual period three weeks, when she "came around" without medication. A short time before marriage she had an attack of cholera morbus which debilitated her considerably, and entire recuperation had been prevented by the wedding preparations, journey, visits, etc. etc. On the evening of January 18, 1877, the second day of menstruation, while feeling quite weak from the unusually profuse flow, as she was sitting alone, she thinks, she suddenly lost consciousness for an instant, and swayed over sideways, but did not fall from her chair. She was soon able, however, to rise, go into another room, get a bottle of spirits of camphor, return, and lie down on the sofa. I saw her in the course of a few minutes, and found her reclining upon the sofa unable to raise her head on account of dizziness. She complained of a prickly feeling in the left hand and an inability to see distinctly. She was able to move all her limbs, though feebly, while lying on the sofa, but was unable to stand or walk to her bed. There was no defect in articulation or drawing of the face.

For the next two or three days she slept the greater part of the time, but had no fever or mental disturbance. She had distressing dizziness whenever she attempted to raise her head, and while lying upon the back or right side objects seemed whirling around, but while on the left side objects like the windows and doors seemed turned a quarter around, *i. e.*, seemed horizontal instead of perpendicular. Light was painful.

Seventeen years previously, after the birth of her second child, at which time she lost considerable blood, after a two years' continuous lactation, this lady had attacks of dizziness, and a somewhat similar sudden derangement of vision lasting about twelve hours, objects seeming completely inverted. For two years afterwards she was asthenopic.

Although able to move all her limbs feebly while in bed she was unable to walk without assistance on account of weakness of the left side, which at the same time was decidedly warmer than the other and more sensitive to the touch and changes of temperature than natural. The right side on the contrary retained its normal power, but had lost its sensibility to touch almost entirely, and to changes of temperature completely, so that, in consequence, she received a severe burn on the leg of that side from a hot brick, which one of her friends had placed beside it, and several times subsequently she had the skin of that side rubbed off in places with the flesh brush without causing pain.

On testing the sensation with the æsthesiometer the left side was found hyperæsthetic, especially about the shoulder, but rather less so at the palm of the hand; leg and body not tested.

On the right side, though the sensation was not completely abolished, it was very much blunted, and she was unable to locate the joint touched with precision, and almost all touch on that side caused sensation only at the hyperæsthesic zone just below the clavicle and upper part of the sternum.

I failed to keep notes of the distance which the two points of the æsthesiometer had to be separated in order to be distinguished, but it was four or five times as great on the right as on the left side. The anæsthesia extended to a little way below the clavicle and above the spine of the scapula, above which, *i. e.*, about the shoulder for a short distance sensation was abnormally acute. There was no loss of the muscular sense on the right side, and she was able to hold articles in that hand while her attention was diverted.

There was a feeling of stiffness about the left cheek; the left eyelid drooped slightly, and the left pupil was contracted. The left eye was more sensitive to light than the right, and vision was indistinct, though after a few days she could read with either eye alone, but adjustment for focus was slow and not the same for both eyes, the left eye being the longest sighted.

Ophthalmoscopic inspection revealed no abnormal appearance except a slight congestion of the left fundus. The left conjunctiva was somewhat red.

The left hand at times was two or three degrees (F.) warmer than the right. These differences in temperature, defects in sight, and the dizziness would disappear for a time, after the application of the constant current of galvanism to the back of the neck for a few minutes. When after a few days she was able to walk she was inclined to turn to the left, and was quite short of breath after exertion. There was no ovarian tenderness, urinary or rectal troubles, disturbance of the functions of the spleen discoverable, or difference in the perspiration of the two sides. As she gradually grew better the anæsthetic side became hyperalgesic, but did not regain the power to distinguish differences in temperature.

To what cause could such an unusual train of symptoms be attributed? Was it a case of hysterical hemianæsthesia as described by Charcot?

The lady never had anything approaching a hysterical convulsion, was not of the hysterical temperament, and was not of the age at which such manifestations first make their appearance. There was no ovarian tenderness, and after the first attack no aggravation of the symptoms during menstruation. The anaesthesia did not extend over the whole side as in Charcot's cases, but was bounded sharply by a line just below the shoulder, to which line all sensations caused by touch (slight as well as painful) on that side were referred. These were not the ordinary reflected painful sensations to which M. Gubler has called attention, which are only excited by somewhat sharp pain, and are felt in various parts of the same side, though remote, and are always the same for the same point irritated.

The ocular derangements, viz., contraction of the pupil, presbyopia, congestion of the fundus of one eye alone, could hardly be referred to simple hysteria.

As the patient improved under galvanism the anæsthesia was not transferred to the opposite side as in Charcot's cases. The lesion was too sudden in its advent and too extensive to be peripheral, and on the other hand, if of cerebral origin, the symptoms could only have been caused by two or more separate and distinct injuries involving one the sensory and the other the motor tract.

If the lesion was in the medulla oblongata there would almost certainly have been more or less paralysis of the tongue, more trouble with the respiratory functions as well as paralysis of motion and sensation on the same side, and perhaps diabetes or albuminuria.

The injury must have been above the origin of at least a portion of the nerves going to form the brachial plexus, or there would not have been the loss of power and sensation in the upper extremity, consequently it must have been located in the neck, and it was a case of incomplete spinal hemiplegia. There was not at that time or subsequently any marked pain or tenderness about the head or spine.

Although spinal hemiplegia is noticed by Todd, in his lectures on the nervous system, and he narrates two cases which he considers of this nature, he does not give clear diagnostic symptoms by which this form of hemiplegia may be distinguished from that of cerebral origin. Other physicians have from time to time published cases which were apparently of this character, but generally the symptoms were misinterpreted, and, so far as I am aware, Brown-Séquard in 1869 and 1870 first clearly pointed out the diagnostic differences between cerebral and spinal hemiplegia, in his lectures on the Physiology and Pathology of the Nervous System, which were illustrated by all the cases of spinal hemiplegia which he had been able to collect up to that time, some twenty in number. In these lectures he demonstrates that when a lesion confined to one lateral half of the spinal cord causes paralysis of motion, it is always on the *side of the* *injury*, and that when it causes a loss of sensation it is always on the *side opposite the injury.*

From the pathological observations, vivisections, and dissections of Brown-Séquard, Lockhart Clarke, and others, it may now be considered proven that the sensitive nerve fibres in the spinal cord, instead of crossing with the motor fibres at the medulla oblongata, cross throughout the whole length of the cord, and soon after entering it.

Schiff has confirmed most of Brown-Séquard's experiments, and finds that sensory impressions are conveyed through the gray portions of the cord, and that the sensory fibres cross soon after entering the cord in most, but not all animals—the cat, for instance, being an exception to the general rule.

The hyperæsthesia on the injured side, caused by the division of one lateral half of the cord in the neck, seems, in great measure, owing to the vaso-motor paralysis and consequent greater flow of blood and increased temperature, so well known as the result of section of the cervical sympathetic, but until recently less known after spinal injuries. It begins a few hours after injury, and in dogs and cats, according to Schiff, gradually decreases after two or three weeks. In man, however, it persists longer, as in several of the cases given by Brown-Séquard it still remained after a number of years, in one case over twenty.

Disturbances of vision, also, are well known to follow injuries of the cervical sympathetic, and according to Budge, Valentin, and others, there arise from the spinal cord, between the second dorsal and sixth cervical vertebræ, nerve-fibres, most of which pass up in the sympathetic trunk and through the cavernous plexus to the ophthalmic ganglion, the branches of which regulate the motion of the iris and the supply of blood to the eyeball. This intimate connection explains the cause of the eye symptoms after lesions of the spinal cord in this neighbourhood.

Just above the cilio-spinal centre, viz., above the fifth cervical vertebra, according to Schiff, there passes in the lateral column a bundle of fibres, by which the sensory impressions exciting the respiratory movements of the thorax are conducted. Injuries to these fibres, if severe, cause permanent paralysis of the respiratory movements. According to Brown-Séquard this is not invariably the case.

By comparing the symptoms observed in the case of Mrs. D., with those produced by vivisections and diseases in the cervical spinal cord heretofore reported, we must conclude—

1st. That the lesion was below the medulla oblongata, as sensation and motion were paralyzed on opposite sides—as there was no paralysis of the hypoglossal nerve whose fibres of origin arise in close proximity to the upper cilio-spinal centre, and as there was but slight respiratory trouble.

2d. That the lesion was above the first dorsal vertebra, or there would not have been the loss of power in the upper extremity—also that the lesion was not extensive enough to involve all the branches of the brachial plexus, or the paralysis would have been more complete, and the loss of sensation would have extended above the shoulder.

3d. If the lesion had been mainly between the medulla oblongata and the fifth cervical vertebra we should have expected more respiratory disturbance, anæsthesia to a higher point, and, perhaps, inasmuch as the splenic centre is located, according to Bulgak, between the first and fourth cervicals, some splenic symptoms.

We must therefore infer that the lesion was between the fifth cervical and the first dorsal vertebra.

4th. From the comparatively slight motor paralysis we may conclude that the antero-lateral columns were only slightly affected, as section of one of these columns causes almost complete motor paralysis of the same side; and from the greater paralysis of sensation, that the gray matter was more severely injured, inasmuch as sensation is conveyed through the gray matter.

5th. We may infer that the lesion was situated, or at least was more severe, in the central parts of the gray substance than in the anterior or posterior horns, as the loss of the sensation of temperature was greater and more persistent than that of ordinary touch or pain; for, according to Brown-Séquard, in the dorsal and a portion of the cervical cord the conductors of these different sensations run in different parts of the gray substance, those for temperature in the central, those for pain in the posterior and lateral, and those for ordinary touch and tickling in the anterior parts.

As to the nature of the lesion we may conclude—

1st. That it was not spinal anæmia, because the paresis was not increased by the erect posture, and the lesion was evidently too sharply localized to be dependent on such a cause.

2d. That it was not a serous effusion, as in that case the effusion would have been in the arachnoid cavity, and would have compressed the external or motor fibres more than the sensory.

3d. From the suddenness of its access and the persistence of some of the symptoms it was not a simple congestion, but there was probably a slight extravasation of blood; but, on the other hand, from the rapid recovery of the motor powers and the sensation of touch, we may conclude that these conductors were not ruptured by the hemorrhage, but only had their functions temporarily obstructed by the pressure or congestion around the hemorrhage. That the hemorrhage was not followed by noticeable inflammation, effusion, or secondary degeneration we may infer from the same facts, from the hyperæsthesia following the anæsthesia, and from the absence of any spasmodic action which, according to Charcot, always accompanies inflammation of the lateral columns.

Had menstruation anything to do with this hemorrhage? I am inclined to believe that it had, although I am not at present prepared to say what the connection was, for several cases are on record in which spinal paralysis followed flooding after delivery, or profuse or suppressed menstruation.

The treatment of this case consisted of the administration of ergot and the ferruginous tonics at first, and afterwards the constant galvanic current to the back of the neck and paralyzed side, and faradization with the wire brush to the anæsthetic side.

The patient is now, June 14, 1877, unusually stout and well, and has entirely recovered, except as regards the power to distinguish differences of temperature, and a slight hyperalgesia on the right side, particularly after unusual fatigue. The temperature is now alike on both sides.

ARTICLE XVI.

A CASE OF NEURALGIA OF THE SECOND METATARSO-PHALANGEAL ARTICULATION. CURED BY RESECTION OF THE JOINT. By ERSKINE MASON, M.D., Surgeon to the Roosevelt Hospital, New York.

FRANK P., aged 21, native of South America, fireman by occupation, was admitted into Roosevelt Hospital, January 17, 1877, and gave the following history:

Sixteen months ago he fell from his engine, and received a compound fracture of the right femur a short distance above the knee, from which he made a good recovery, though with an anchylosed knee. Six months ago he had the great right toe removed in Chicago for what he called neuralgia, though he states that the surgeon who removed it told him that the joint was diseased. It was removed at the metatarso-phalangeal articulation. Four months ago he began to have pain similar to that which had previously existed in the great toe, in the metatarso-phalangeal articulation of the second toe. This pain has increased so that for the past two months it has been so severe when walking or standing that he had to give up work, and now enters the hospital, either to have the toe removed, or obtain relief in some other way. The general condition of the patient is good. There is no swelling or redness about the toe, but the slightest pressure is sufficient to produce pain, and when walking he bears all his weight upon the heel. All the toes are constantly in a state of great extension, looking almost as if dislocated forward.

A variety of treatment failing to afford relief, I determined to resort to resection of the joint, bearing in mind Dr. Thomas G. Morton's interesting and instructive paper in the *American Journal of the Medical Sciences* for January, 1876. I accordingly removed this joint by a single straight incision on the dorsum of the toe on the sixth of February, 1877. So great was the degree of extension of the toe that a partial luxation may be said to have taken place. Nothing abnormal was detected in the articulating surfaces of the bones removed. From the time of the operation all pain ceased, and he has since had no return of his troubles. The wound, however, was some time in healing, a small abscess occurring upon the under surface of the toe, which remained open for some time. At the present time (August 20) the foot remains well, and for the past few weeks he has been acting as night watchman in the hospital, is very well and hearty, and free from all pain.

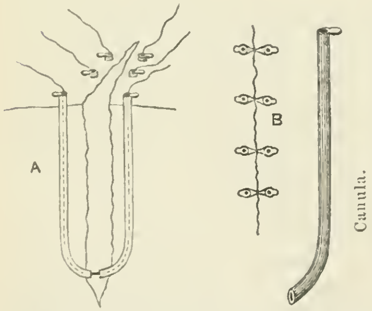
It will be noticed that in Dr. Morton's cases it was the fourth metatarso-phalangeal articulation that was affected. In this instance it was the second. In all his cases I believe an injury was the exciting cause. In my case I have no doubt it was the same, the joint being probably injured at the time his femur was fractured.

ARTICLE XVII.

TWO NEW SUTURES. By H. L. THOMAS, M.D., of Richmond, Va.

THE difficulty of maintaining coaptation in deep incisions and lacerations of tissue, notably such as affect the female perineum, suggests the use of other means than those commonly in vogue. If, for example, it be attempted to bring together the two sides of a deep perineal rupture by the suture usually resorted to, whether fastened by quill, clamp, shot, or otherwise, it will be found that as the threads or wires are tightened the sides of the wound are more puckered than coaptated, and the greater the tension the more this effect is increased, such a result being inseparable from the yielding nature of the soft parts. The bottom of the wound being more fixed than any other part, the effect of traction is to draw the sides and surface in a puckered manner in this direction. The best means for securing coaptation, and consequently ready union, is to keep the sides of the wound in easy, unyielding contact. A desirable approach towards this end is attained first, by rendering the sides of the wound comparatively rigid; and secondly, by reducing the depth of the suture grasp one-half. The first result is secured by what I shall call the *canula* suture, the second by what may be termed the *figure-of-eight* suture.

Fig. 1.



Canula suture. A. Section through a wound showing canulæ and thread. B. Surface of wound with figure-of-eight wire fastening around flanges on heads of the canulæ.

Canula Suture.—For this purpose as many steel canulæ as may be necessary are to be employed, the surgeon being provided with a full set, varying in their lengths and assorted in pairs. Their length must be determined by the depth of the wound; their size must be such as to secure strength and allow sufficient calibre for passing the strongest suture-wire; whilst their curvature should be about that of an Eustachian catheter. In fact, a miniature Eustachian catheter would very well represent the instrument. The surface end of each canula must be provided with a shoulder or flange, to which the wire is to be secured so as to provide against slipping. The desired number of sutures being introduced in the usual way, a canula is passed over each end of the wire, pushed home to the bottom of the wound and secured in this position by winding the wire around the flange or shoulder. When all the sutures are thus arranged, the parts are brought into appropriate contact and fixed by winding a figure-of-eight thread over the heads of each pair of canulæ.

One of the advantages of this suture is that the tension of the parts may be kept under perfect control by loosening or tightening the figure-of-eight thread, thus maintaining the canulæ in a more or less proximate position according to wish. The wire passing between the buried ends of the canulæ acts like a hinge joint, and allows of any degree of motion. No objection can apply to the additional bulk of the canula, for by lessening the traction of the wire all of its cutting is avoided, which in the end amounts to vastly more than the size of the canula. To remove this suture, cut away the figure-of-eight thread, unloose the wire from the shoulder of one canula, draw the latter over the wire, then draw away the opposite canula and the wire comes with it.

Figure-of-eight Suture.—This suture is made by passing a spiral needle into the right side of the wound half way its depth (passing it through the bottom in the usual way), and bringing it out at a corresponding point on the opposite side. The suture now embraces half the depth of the wound. Re-thread the needle with the left hand end of the suture, carry it through the puncture already made on the right side and bring it out at the surface. Treat the right end of the suture in a corresponding manner by crossing it over to the left side and the operation is finished, nothing being left but to approximate the edges of the wound and secure the suture. The effect of this suture is to lessen the amount of traction by shortening the grasp of the suture one-half. The crossing of the threads at mid-depth of the wound gives the advantage of two superimposed shallow sutures over one deep one.

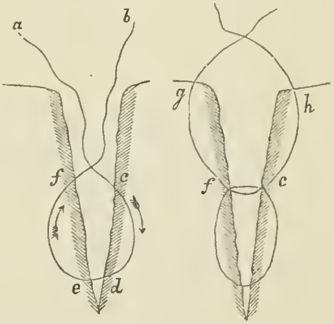


Fig. 2. Fig. 3.

Figure-of-eight suture showing direction of thread. The letters indicate points of passage of thread. Thread *a*, fig. 2, is reinserted at puncture *f*, with exit at *g*, fig. 3. Thread *b*, fig. 2, is reinserted at puncture *c*, with exit at *h*, fig. 3.

It will be obvious to the surgeon that both a *right* and *left* spiral needle will be required for this operation.

ARTICLE XVIII.

TWO CASES OF HYSTERO-EPILEPSY. By ALLAN M'LANE HAMILTON, M.D., of New York.

THIS interesting variety of hysterical trouble has received a great deal of attention from Charcot,[1] Dunant,[2] Dubois, and Bourneville, as well as many other writers, some of whom did not recognize its distinct character until after Charcot's valuable investigations had been announced.

Tissot[3] says "the hysterical attack sometimes resembles epilepsy, so much so as to have received the name *epileptiform hysteria*, but the attack nevertheless does not possess the true character of epilepsy."

Others, among them Briquet,[4] Landouzy, and Saunders have also described the condition.

Upon the authority of Charcot[5] the combinations of epilepsy and hysteria take place under the following different circumstances:—

1. *a.* Epilepsy being the primary disease, upon which hysteria is engrafted under the influence of emotional causes or at the time of puberty.

b. After marriage (*vide* Landouzy's Case) the epilepsy having always existed. After connection the hysterical feature of the attack is developed. In this case the hysterical character of the epilepsy subsided when sexual excitement was interrupted by pregnancy.

2. The hysteria being primary, the epilepsy is added thereto. A rare condition.

3. Convulsive hysteria coexisting with petit-mal.

4. An epileptic attack followed by hysterical contracture, anæsthesia, etc.

I have observed a form which slightly differs from any of the above. The patient, an epileptic, was seized *occasionally* with hysterico-epileptic attacks during the menstrual periods, and at other times there was uncomplicated epilepsy. She has had epilepsy since the fifth year, when she was frightened by her mother, who threatened to beat her.

CASE I. A. P., æt. 18, since the beginning of the menstrual epoch she has suffered from her present form of hystero-epileptic attacks, which have come on generally just after the cessation of the catamenal period. She has been very irregular, and has suffered from amenorrhœa, but there is no uterine disease that I can discover. This amenorrhœa has amounted to an entire cessation of the menstrual flow for several months at a time, during which she would have her attacks. Some of these attacks were like that I shall presently describe, and lasted for several days. There was no succession of attacks, but usually several severe but distinct epileptic seizures, and afterwards an hystero-epileptiform paroxysm. She had been in the Epileptic Hospital for some time, and had given a great deal of trouble by her irritability and mischief-making propensities. Her attacks at the hospital were three in number during one year, each of them lasting from two to three days at a time, during which there was suppression of urine, vomiting, and hemianæsthesia, which in one instance was on the right and twice on the left side.

---

[1] Charcot, Leçons sur les Maladies du Système Nerveux, Part I., Paris, 1872.

[2] Dunant, De l'Hystero-epilepsie.

[3] Tissot, Maladies des Nerfs, quoted by Charcot.

[4] Traité de l'Hysterie, 1859.

[5] Op. cit., p. 324.

Her most pronounced attack occurr'd while she was staying at her mother's house, where I was summoned to see her. This was on the 14th of March, 1877, when her mother came to my office and told me that her daughter had been ill since the preceding Thursday, that she had gone with her sister to see a friend, and that while there she had been seized with a severe fit and could not go home until the next day (March 9). She said that on her return her daughter complained of headache, pain in the back, over the ovaries and abdominal discomfort, and as the time for her menses had come, she gave her a pill of aloes and myrrh on Saturday and another on Sunday night with no result, and a warm hip-bath on Monday. (She had not menstruated since December, 1876.) On Monday she had several severe epileptic fits with frothing at the mouth, during which she bit her tongue, and went to bed, where she remained until I saw her. I went to the house and found that she had been seemingly unconscious since Monday night, that she had been "frothing at the mouth" since that time, and that on Tuesday she began to mutter and talk to herself; that she had had hallucinations and delusions, some of them of a painful character, believing that she had been followed by a nurse from the hospital whose intention was to kill her. When her mother entered the room she berated her soundly, and was quite abusive, indulging in obscene language.

I found her lying upon the bed lightly covered by a sheet. The muscles of her back were rigidly contracted, so that her position was one of opisthotonos, her head was turned to one side, and her tongue was protruded. Her eyes were open and the pupils widely dilated and insensible to light. Her expression was blank, and she was apparently unmindful of her surroundings. Her arms were drawn over her chest, and her forearms slightly flexed and crossing each other. Her thumbs were bent in and covered by her other fingers which were rigidly flexed. Her pulse was 124; temperature 101.2°; respiration 35; she was muttering to herself a disconnected string of words without any meaning, and continued them during my visit. She had not eaten for twenty-four hours, and I ordered milk, and chloral hydrat in twenty-grain doses, to be forced into her mouth if she did not open it of her own accord.

On my return the next morning, the mother told me that she had had delusions during the night, and had cursed those of her family who ventured to approach her. I found that the rigidity of the previous day had become less marked, but that her right hand and forearm were beneath the lower part of her back. The right corner of her mouth was drawn downwards, and her eyes were still open, and the corneæ anæsthetic. She did not know me. Temperature 100°; pulse 108; respiration 28. On the following morning Dr. Charles E. Lockwood of this city went with me to see her. She was then much better, and was less rigid, but the right hand was tightly clenched, and no persuasion would induce her to open it. Her toes were also flexed, and her right foot presented the appearance called by Charcot, "le Pied bot hysterique." Her corneæ were sensitive and her pupils less dilated. There was some rolling of the eyeballs from side to side, and the patient occasionally sighed. Her pulse was now only

96, and was small and irritable; the temperature was 99°. When sharply spoken to, she said "Doctor," and relapsed into a state of stupidity, turning her head from right to left and staring at the ceiling. She occasionally moved her tongue as if her mouth was dry. Dr. Lockwood suggested the experiment of frightening her, and so we threatened the use of the cautery, the mention of which first brought forth remonstrance and afterwards a reply to our questions.

Her mother stated that she had not passed urine for several days. I did not find a distended bladder, but when the catheter was introduced it brought away about half a pint of light-colored urine. This suppression of urine continued for several days.[1] She arose from her bed the day after this last visit, and her menses appeared. During the next three or four days there was slight hemianaesthesia of the right side.

CASE II. A young lady, 19 years old, had been my patient for nearly a year, during which she has had on an average about one attack of haut-mal in a week. Her epilepsy dated from the 9th year, and was not dependent upon any discoverable cause. At all times she is irritable, pettish, and techy, and leads a very irregular life. There was nothing remarkable about her attacks, they were not very violent, nor were they connected with any hysterical manifestation. There was rarely any coma, but they were more severe about the time of the menstrual discharge, which was never abundant. On the 12th of September, 1876, I was telegraphed for to see the patient. The day before my arrival, without any premonitions, she had had an attack very much like all the others, but instead of falling asleep she remained convulsed, and apparently unconscious. She vomited two or three times and became quite cyanotic, so the local physician was sent for. He found it impossible at first to open her mouth to remove the substance which had collected therein and distended the cheeks, and it was only when he was assisted by others that he could do so. She was placed in bed and remained in this state, the eyeballs rolling from side to side, the body drawn slightly to the right side, and the hands clenched. She became delirious during the night, and had delusions of a lively kind, like those of a patient with delirium tremens. Outbursts of hysterical laughter and jactitations of the limbs followed in the morning, and then she became quiet, but the muscles were somewhat rigid. I arrived at about 2 P. M., and found her lying upon the bed with open eyes and meaningless stare. Her right arm was rigidly adducted, and the bed clothes were tightly grasped in her hand. The head was drawn so that the chin was approximated somewhat to the chest. The teeth were set together, and there was some grinding of the molars. She breathed noisily, there being an accumulation of mucus in the throat. Temperature 100.2°; pulse 86. The pupils were dilated and seemingly unaffected by light. Pressure upon the right ovary caused her to shrink somewhat. Her abdomen was distended by flatus. During the night she became somewhat relaxed and muttered unintelligibly, but in a petulant tone. She fell into an apparent sleep about 5 A. M., her respiration being natural. She awoke at about 5 P. M. of the same day (the third), and though somewhat fatigued, arose and went about. She was not hemianæsthetic, but ischuria lasted for several days.

An inspection of the cases of Charcot and others will enable the reader to detect certain symptoms which are alike in all the patients.

---

[1] It is probable that this urinary derangement was of the form called by Charcot *oliguria*.

CASE III. Reported by Charcot. Marc — 23. Hystero-epilepsy dated from the 16th year; attended by hemianæsthesia and hemiparesis of left side. Daltonism of left eye; frequent vomiting. Attack preceded by an aura and pain in left ovary. Attacks included three stages: *a*. Tetaniform contraction, epileptiform convulsions. *b*. Violent movement of trunk and lower extremities (period of contortion). Silly and disconnected talking. Patient appeared to be semi-delirious. *c*. Laughing fits; attacks stopped by ovarian compression.

CASE IV. Charcot. Cot. 21 years. Hysteria dated from the 15th year, and followed cruel treatment at the hands of her father, when she took to drink and became a prostitute. Local symptoms are: right hemianæsthesia, ovarian pain, permanent and *tremulation* of the right lower extremity; convulsions followed ovarian pain. They are tonic, and she bit her tongue and frothed at the mouth. The second period followed at once, and was marked. The attack often terminated by movements of the pelvis, laryngeal constriction, crying attack, passage of large quantities of urine. Ovarian pressure moderated attack, but did not arrest it.

CASE V. Charcot. Legr. Genevieve 28. Hysteria dated from puberty. Permanent local symptom; left hemianæsthesia, ovarian pain and mental peculiarities (bizarre). Aura quite marked and so are cardiac palpitation and head symptoms; attack may be divided into three stages: *a*. Epileptiform convulsion, frothing at the mouth, and stertor. *b*. Movement of limbs and body. *c*. Period of delirium, during which she detailed the events of her life. Occasionally last stage would be characterized by hallucinations, when she would see crows, serpents, etc. She would at other times dance. Ovarian pressure arrested attack.

CASE VI. Charcot. Ler, 48 years. Attack dates from early life when she was frightened by a dog, and by the sight of the body of a woman who had been assassinated. *Local* symptoms, hemianæsthesia of ovary; paresis and contractures of the upper and lower right extremities, and occasionally the left. Attacks begin by ovarian aura, followed by epileptiform and tetaniform convulsions, after which she assumed the most trying postures. At the time of the attack she falls into a delirium, during which she indulges in furious invectives, crying to imaginary persons. "Villains, robbers, brigands, fire, fire; Oh the dogs! oh, I'm bitten!" these being suggested by memories of her childish fears. When the convulsive part of the attack is terminated, then follows: 1. Hallucination of sight, the patient seeing skeletons, frightful animals, spectres, etc.; 2. A paralysis of the bladder; 3. A paralysis of the pharynx; 4. Finally a more or less permanent contracture of the tongue. These last symptoms remain for several days, during which it is necessary to feed the patient with the stomach pump, and then draw off her urine.

Two cases reported some years ago in the *Psychological Journal*[1] resemble the more modern hystero-epilepsy so closely that I am inclined to infer that they were attacks of this disease.

CASE VII. Arguinosa's Case.—Woman, twenty years. Epileptiform convulsions first showed themselves during infancy, in consequence of head injury. They reappeared at puberty. While residing in the house of Dr. Arguinosa she complained of ovarian pains. The precursory signs of an epileptic attack soon showed themselves, and, on returning from a walk, "she had scarcely time to throw herself on a bed before she lost both sensation and motion. The skin hot, respiration loud, pupil immovable, eyelids closed convulsively, limbs flexible, while the lips were convulsively moved, or else a sardonic smile sat upon them. Bleeding was about to be practised, when, all of a sudden, after some horripilations, the skin became cold and colourless, the pulse and respiration were suspended, and the patient appeared dead."

Cold affusion to the head seemed to produce an effect. The respiration then became agitated, the pulse strong, and violent convulsions, with tetanic rigidity (pleurothotonos) set in.

She became angry and irritable, screamed out. Noises in the room, light, and the steps of persons around her were sufficient to "draw her from her attacks of delirium." She had a presentiment of sudden death.

---

[1] Forbes Winslow's Psychological Journal, vol. ii. p

"Two days following there were the same alternatives, the delirium occurring less frequently, and lasting a shorter time; she slept but little that night (the 4th): the next day the only symptoms noticed were aversion to water, light, and air, with the pain of stomach previously complained of. On the sixth day she asked for a bath, and the opium which she took in the evening. A stool brought on strong convulsions and noisy delirium. The women who were attending to her believing her to be possessed by the devil, sprinkled her with holy water, which increased her furious cries and bizarre contortions. The following night was dreadful; the mouth full of foam, the eyes injected, and the delirium almost continuous. About ten in the morning immoderate laughter succeeded the previous symptoms. She ultimately died."

Case VII. (Ward).—Mary P., aged 13. Measles at age of seven, and has ever since been subject to cough and pain in the side. About one year ago she had her first epileptic fit, during which she attempted to bite and scratch the bystanders. She was not insensible, but delirious. The attacks came on in intervals for a fortnight afterwards, and they became much worse at the end of this time. Her arms were extended and rigid, and the fingers clinched. At other times she struggled violently, and the abdomen became swelled. She never became unconscious. Her disposition was changed, for she grew exceedingly mischievous between the attacks, developing a propensity for climbing trees and playing the hoyden. Ovarian pain sometimes. The attack is occasionally finished by a fit of laughter.

Charcot holds that a very important diagnostic sign is the reduced temperature. In epilepsy the temperature may rise to 107.6° F., while that of the hystero-epileptic rarely attains a height of 100° F. In the cases I have alluded to, Case I. presented all the prominent symptoms by him enumerated, and still the temperature was quite high.

Article XIX.

Case of Oxalate of Lime Calculus, weighing five and one half ounces, successfully removed by lateral operation. By E. B. Chapin, M.D., of Carbondale, Ill.

On March 29, 1877, I was called to see Wyatt McK., coloured, aged 48, born in Franklin County, Alabama, and lived there until 1862, since which time he has lived in Cairo and Carbondale, Illinois, working, when able, at his trade—shoemaking.

According to his voluntary statement he had suffered from symptoms of "gravel" since he was six or eight years old; there had been a gradual increase in the severity of the symptoms from that time to the day of operation, interspersed at intervals of from a few weeks to a few months with "fits" of great suffering.

For the last ten or twelve years he had been unable to retain his urine for more than one or two hours, and from the exaggerated sensibility of the neck of the bladder produced by the long-continued mechanical violence, the calls to urinate for the past few months had become almost incessant and imperative, robbing him of rest by day and night. From the almost constant tension of the abdominal walls in the act of straining to evacuate the bladder, the recti muscles had attained a degree of firmness resembling that of strong, tonic, muscular contraction. There was prolapse of the anus, with inflammation and thickening of the mucous membrane, and also hemorrhoidal tumours.

At the time of my first visit the patient, in great agony, was dancing around the room, a part of the time doubled down, with his nates resting on his heels and his head between his knees, with his hands pinching, pulling, and rolling his genitals and pressing the urethra along its course through the perineum. This paroxysm was only comparatively relieved by full and frequent doses of morphia aided by diluents and fomentations.

An examination of the urine with the microscope showed both pus and blood-corpuscles, but it did not reveal any crystalline deposits; nor was there any evidence of diseased kidneys.

The patient was sounded without anæsthetics, April 6. No. 8, of Van Buren, passed without meeting any obstruction and came in contact with a calculus at the entrance of the bladder just behind the prostate. As the instrument struck the stone there was the peculiar and characteristic *click* of the steel against a hard calculus, which was distinctly heard by all concerned.

The calculus was so tightly held by the firm and contracted, as well as *contracting*, walls of the bladder that it was impossible to change its position; and from its large surface being so firmly pressed against the sensitive urethral portion I was unable without undue violence to pass the sound by it in any direction except in front of and between it and the pubic arch. Although not enabled in this manner to measure the concretion yet I was satisfied it was unusually large and quite hard.

By examining the prostate through the bowel it was found to be as large as a small orange, and very sensitive to the touch. The parts were again examined under ether April 20, when the previous diagnosis was fully confirmed.

For obvious reasons, but chiefly on account of the size and density of the stone, lithotrity was precluded. The patient after being made fully acquainted with his condition, and the unfavourable prognosis attending an operation, was anxious for relief and most willing to take the risks. Lithotomy having been decided upon, the operation, on account of the exhausted condition of the patient, was delayed until May 1, when, with my friend and former student, Dr. W. R. McKenzie, of Chester, as my chief assistant, the patient, having been duly prepared, was anæsthetized and placed in the lithotomy position.

The staff, Markoe's, which is somewhat triangular and deeply grooved in the centre, was introduced, and, as was the case with the sound, was unable to enter the bladder except by depressing the handle a little and letting the beak of the instrument ride over the stone. With its point thus resting on the calculus and handle depressed, the convex portion could not be brought into a suitable position. Withdrawing the staff an injecting catheter was introduced, but the over-sensitive bladder would not tolerate or retain an ounce of tepid water, even after the patient was fully under the influence of ether.

Seeing now we were to operate in a "dry bladder," the staff was again introduced and held by Dr. McKenzie, with the beak resting on the stone in the manner above mentioned. The usual incision for lateral operation was made, the staff reached, and the urethra opened with the knife; but thinking it unsafe to thrust the knife into an empty bladder, Wood's bisector or double-edged cystotome was used, and the bladder opened through the prostate by depressing the handle of the staff still more and pushing the bisector onward between the staff and the calculus.

After dilating fully with my finger the prostate on the left side, and some on the right, the forceps were introduced; and, although there was no trouble in *grasping* the stone, there was much difficulty in retaining hold of it, for the stone being large and my forceps so short that when applied the blades stood so nearly at right angles that they would not allow the use of any traction without slipping. At this stage the words of Liston came forcibly to my mind: "*There can be no more fatal error than to attempt the extraction of a large stone with short and shabby forceps.*" A longer and fenestrated pair was then used, but I found the opening insufficient for the passage of the calculus.

Dolbeau's lithoclast, a heavy pair of crushing forceps, with a central raised ridge of heavy teeth pointing backward, with an extra screw for drawing the jaws together, was now tried, but it would not, with the screw attached, open sufficiently wide to engage the calculus, and upon removing the screw from between the handles it was not only difficult to manage the instrument with the handles so far separated, but like the forceps first used had blades, or jaws, too short to retain its grasp.

Abandoning this instrument I divided with a probe-pointed bistoury and my finger the right lobe of prostate to its full limit; now by a more thorough exploration of the cavity I found a constriction of the bladder firmly grasping the calculus at what proved to be near its centre.

Again using the open-bladed forceps, and, while traction with undulating motions was being made, the finger, already in the wound beside the forceps, was pushing the constricting band out of the groove or neck which had been formed, and as the band receded my finger followed it until it was behind the calculus and aided its expulsion.

After washing out the bladder thoroughly, the patient was placed in bed on an inclined plane and given a full dose of opium with brandy. It is unnecessary to give the after-treatment in detail; yet it may be interesting to know he was ordered to take quinia grs. iijss, and opium gr. j, every four hours, but by mistake of the nurse he was given just double that amount, which, being well borne, was continued for two days. Egg-nogg, milk-punch, beef-tea, etc., were given freely for the first few days.

The bowels having been well cleared out the morning of the operation, and he not having taken any solid food since, they were kept quiet until the sixth day, and then were moved with castor oil, assisted by clysters of ox gall and water.

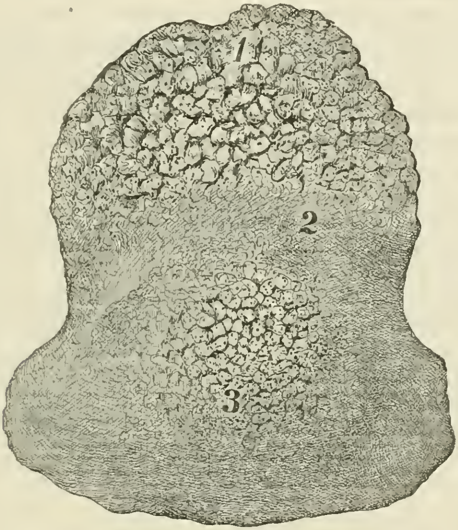
The pulse which had been from 120 to 136 per minute before the operation, had, on the day following the cathartic, come down to 88.

From this time forward, as his appetite and strength increased, medicines and stimulants were gradually withdrawn, and he continued to do well; his bowels acting without cathartics, and the urine passing by the wound for twenty days, when, notwithstanding the large opening through the prostatic urethra, I thought it time the urine should resume its natural channel; and to secure this, and at the same time guard against incontinence of urine, I preferred, instead of tying a catheter *in* the bladder, to have one—a No. 10, soft—introduced regularly every two hours, which he very readily learned to do for himself. After following this plan five days no urine could be made to pass by the cut, and at the time of this writing, June 15, the wound has entirely healed, leaving but a small cicatrix.

This case presents some points of interest which will be briefly noticed.

1st. Although the patient—who is three-fourths negro—was born and raised in Alabama, where vesical calculi are not uncommon, yet we do not expect to find many cases of stone among this race. "It is certainly very rare in the negro."[1]

2d. The stone was an unusually large mulberry calculus (so-called), being composed principally of oxalate of lime, and measuring seven and a quarter inches in circumference in the largest part of its short diameter, and eight and a quarter inches in circumference in its long diameter, and weighing, when first extracted, five and a half ounces. Prof. W. H. Van Buren, in his *Treatise on the Genito-Urinary Organs* (p. 262), says: "The hardest stones are more apt to be solitary, and they are generally the smallest in size." . . . . "grow slowly, and seem even to remain stationary for long periods." Prof. Gross says of this kind of calculus, in his *System of Surgery*, 4th edit., vol. ii. p. 703: "They are almost always comparatively small, no matter what may be their age or the age of the patient."



1. Sacculated portion; 2. Constricted portion grasped by the walls of the bladder; 3. Anterior lower portion lying at the trigone.

When we consider these facts, the size of the stone, its density, having a specific gravity of 1.836, and nearly as hard as marble, and place them beside the patient's history of the case, I think we are justified in saying that the concretion has probably been in process of formation for the long period of forty years.

3d. Nearly one-half of the calculus having been sacculated and held more or less firmly by the constricting band before mentioned is very rough, and the asperities of its crystalline deposit are quite sharp and angular, from the fact that they were protected from attrition during the process of crystallization, while that portion situated within the cavity of the bladder proper is larger and comparatively smooth, although the anterior and lower portion lying imbedded at the trigone and not subjected to any friction motion is also somewhat rough, resembling millet-seed.

---

[1] Van Buren and Keyes on Genito-Urinary Organs, p. 260.

4th. The calculus is not as rough as the oxalates generally are, neither is it dark coloured, but is of a light gray or pink colour, and quite crystalline in structure, thus belonging to one of the rare varieties of oxalate of lime calculi mentioned by Holmes.[1]

5th. This case shows to what extent an enlarged prostate may sometimes be divided and distended with safe results, which, in this instance, with my finger and forceps beside the calculus must have required an opening of at least three inches in diameter.

6th. The patient, without an unfavourable symptom to follow the operation, has made a speedy and complete recovery, having full control of his urine, and from what he tells me I conclude also that the orifices of the ejaculatory ducts are unimpaired.

7th. Considering the shape of the stone, and the manner in which it was grasped by the bladder wall, I am led to believe this has, at one time during the process of formation, been a true case of sacculated calculus; and that that portion situated within the cavity of the bladder proper has had a formation by accretion, secondary to the pouched or sacculated portion.

ARTICLE XX.

REPORT OF A CASE OF SPONTANEOUS CLOSURE OF A GANGRENOUS SOLUTION OF CONTINUITY IN THE INTESTINE RESULTING FROM STRANGULATED HERNIA.

By K. V. R. LANSINGH, M.D., Resident Physician at the Arapahoe County Hospital, Denver, Colorado.

THE annals of surgery contain many curious instances of benefit derived wholly from the *vis medicatrix naturæ*, which conform closely to the best results obtained by operative interference.

These cases are not without their advantage in teaching the surgeon something about the unwritten law of repair, as well as keeping before his mind the almost boundless power of nature, when wisely aided and directed. Not infrequently they serve to point out the readiest means of relief, or to confirm the practice as laid down by intelligent operators.

---

[1] Treatise on Surgery, p. 804.

The late Dr. Alden March, of Albany, N. Y., during one of his terms of service as surgeon to the City Hospital, presented to a class of medical students, of which the writer was a member, a case of spontaneous lithotomy occurring in a young man, in which nature unaided gave exit to an egg-sized calculus, in the exact location selected for the unilateral operation, completing her unusual effort with a most excellent cure.

Gangrene of the intestine from strangulated hernia not terminating fatally, commonly results in a fecal fistula, than which a much more deplorable condition cannot exist. A spontaneous cure from a gangrenous opening of the bowel is believed to be rare, and the following case is reported, both for the purpose of giving publicity to the event, and to inspire timid operators in strangulated hernia with the certainty that the secondary conditions are less to be dreaded than the immediate danger, if the stricture be not relieved.

An apology is due for the absence of temperature observations in this case, occasioned by the lack of facilities at the time, rather than negligence.

Case.—W. P., a robust, compactly-built German, aged 52, by occupation a baker, but for the last two years a sheepherder, has had oblique inguinal hernia about 35 years. Has worn a truss with soft pad, though at times dispensing with its use. He could generally reduce the hernia himself, but often employed the aid of his friends, instructing them how to perform taxis. On February 24th, 1877, the hernia came down after walking, no truss having been worn for two weeks previous. Efforts at reduction were made by patient and friends without avail. The following day a physician was summoned, who made a brief attempt to relieve the difficulty by taxis, and failing, abandoned the case. Twenty-four hours later another disciple of the healing art was secured who, without the use of an anæsthetic, likewise failed to afford relief, and only inflicted great torture on his patient. It does not appear that either of these gentlemen suggested operative interference, but left the patient with the inference that there was no help for him, and he must die.

Nothing further was done in the case until March 2d, when patient was carried two miles in a farm wagon to a railroad station, and thence conveyed to Denver, arriving at 6 P. M.

He was immediately taken to the county hospital, and when undressed and put to bed a careful examination was made by the resident physician, who found an oblique inguinal hernia on the right side, extending well down in the scrotum, the tumour reaching about one-third way down the thigh, congested in appearance, extremely sensitive to the touch, and manifesting on manipulation the presence of intestine very clearly. Chloroform was administered until relaxation was produced and reduction attempted by taxis, but without avail. A full dose of opium was given for the night, and the patient left to repose.

The following morning the case was inspected by Dr. H. A. Lemen, Physician to the Arapahoe County Hospital. Ether was then administered until thorough relaxation ensued, when taxis was again tried, and the tumour aspirated to facilitate this process. Although these means served to produce an apparent diminution in the size of the tumour, the hernia remained *in situ*.

The symptoms of strangulation, viz., nausea, stercoraceous vomiting, anxious countenance, accelerated pulse, and high fever, were wholly wanting. The patient was tranquil, pulse 90, appetite fair, moderate thirst, no pain save when the hernial tumour was manipulated. An injection of soapsuds *per rectum* brought a small discharge of feces. Opium was given to induce quiet, and further procedure postponed until afternoon.

A consultation was held in which Drs. W. R. Whitehead and W. H. Williams of Denver participated, when it was agreed that *immediate* operative interference was not demanded. Rest, elevation of pelvis, and support of tumour continued, combined with full doses of opium, and results awaited.

March 4. As there was practically an obstruction to the passage of feces, it was determined to operate.

Accordingly, Dr. Lemen performed the usual operation for strangulated hernia, ably assisted by Dr. Whitehead, while ether was administered by the writer. The parts being tense, swollen, and extremely vascular, the utmost caution was observed, each layer of tissue after the primary incision being divided upon a grooved director.

Eleven ligatures were applied to bleeding vessels, added to which considerable trouble was experienced from capillary hemorrhage. Upon reaching and dividing the sac, it was found that gangrene had already supervened, and feces and noxious effluvia made their exit through the opening in the intestine.

To carry the operation further was obviously unnecessary. The wound was dressed with lint soaked in a five per cent. solution of carbolic acid, and the patient put in a comfortable bed. He rallied well from the effects of the operation. A full dose of opium was ordered every six hours. The following progress of this case is taken from daily hospital notes, and these, although brief and necessarily incomplete, show the main features of treatment, with a resulting cure, which was quite free from disturbing influences or complications.

5th. Twenty-four hours after operation. Pulse 106, full and reasonably strong. Tongue dry and coated. Abdomen rather tympanitic. Urinates well. Fecal discharge from wound quite profuse, light-yellow, and watery. Carbolized dressings changed every four hours. Diet limited to beef essence and milk punch in moderate amounts.

6th. Pulse 104. Mouth dry and tongue heavily coated. Urine smoky and loaded with urates. Tympanites very marked. No vomiting or nausea. Skin warm and dry. Flaxseed poultices applied over wound and abdomen.

7th. Pulse 104. Tongue cleaning somewhat. Urinates freely. Flatus passes from rectum, but no feces since operation. The opening in the bowel discharges freely, gas and liquid feces bubbling up—like a geyser—when the dressings are removed. A slough $\frac{5}{8}$ by $\frac{3}{8}$ of an inch, disk shaped, has formed over the intestinal opening. Scrotum and root of penis very œdematous. Opium still freely used. Patient is hopeful, and in good spirits.

8th. Pulse 100, good volume. Tongue becoming moist. Eyes clear and bright. Wound looks well, and opening discharges liquid feces freely. Urine free, and quite normal in colour. Appetite improving.

9th. Pulse 95. Abdomen soft. Fecal discharge through opening profuse, and quite consistent. Surface of wound bathed in healthy pus. Slough came away from the intestine, leaving a clean opening, about half an inch long, and dilated to rather more than half that extent. A probe passes freely in the bowel. Three ligatures were removed. Slight increase in amount of nourishment. Opium and poultices continued with regularity.

10th. Pulse 90, full and strong. Tongue coated with whitish fur, edges moist and red. Wound suppurating freely, and fecal discharge abundant.

11th. One week since operation. Pulse 81. Tongue cleaner, and mouth moist. Sacrum sore from pressure on the bed. Relieved by a ring of lead plaster. Appetite good, and case progressing favourably.

12th. Pulse 77, full, soft, and regular. Patient can turn easily in bed, and sleeps comfortably on either side. Fecal discharge through opening in bowel quite consistent and free.

13th. Pulse 78. Opiates reduced in frequency and amount. Patient sleeps well. A free discharge of feces *per vias naturales* occurred to-day, for the first time since the operation, nine days ago. Spirits and strength improving.

14th. Pulse 78. Tongue clean. Four natural operations from the rectum. Wound granulating. Opening in the intestine still exists, but is contracting.

15th. Pulse 80. Patient turns freely in bed, and would like to sit up. Wound looks well. There has been no discharge through opening for twenty-four hours. Normal movement of bowels, patient managing a bed-pan with facility.

16th. Pulse 80. Very slight escape of fecal matter through intestinal opening. Two passages from rectum.

17th. Pulse 80. Tongue coated, and digestion impaired. The following ordered: R. Acidi nitromuriatici, gtts. xxxij : Pepsinæ, ʒj : Glycerinæ, ʒj ; Tinct. nucis vomicæ, ʒj ; Aquæ fontanæ, ℥viij. M. Sig. Tablespoonful in a wineglassful of water before meals. An addition made to diet, of mutton stew once a day, and stale biscuit with the milk punch. Progress of patient very satisfactory. No discharge through the intestinal opening, nor movement of the bowels to-day.

18th. Pulse 85. Some acidity of stomach. Scanty movement of bowels. Slight oozing of gases and fecal matter through the intestinal opening, which is very contracted.[1]

19th. Pulse 92. Acid stomach, and griping in bowels. Injection of soapsuds gave a free action.

20th. Pulse 80. Considerable tenderness on pressure over right iliac region. Bowels rather costive.

21st. Pulse 88. The following ordered to improve digestion, and relieve borborygmus which is quite marked: ℞. Elix. pep. bis. et strych. ℥ij ; Pepsinæ, ʒj. M. Sig. Teaspoonful after meals. ℞. Neutralizing Cordial, ℥ij : Bis. sub nit. ʒj. M. 2 teaspoonfuls every 4 hours.

22d. Pulse 100. Feverish, and bowels constipated. Injection of soapsuds brought away three full discharges, in the last of which patient "felt something tear away inside," doubtless adhesions formed by local peritonitis, or enteritis. A careful exploration of the scrotum is made as far as the external abdominal ring, and no hernia remains. The rupture of obstructing bands permitting, the bowel has returned to its natural relations. Mutton broth is substituted for the beef essence, which has palled upon the taste. Opiates discontinued.

---

[1] This point marks an important era in the case, as being the last day on which a discharge of any kind occurred through the intestinal opening. In two weeks from the operation, the integrity of the intestine has been restored. The case is now changed to one of recovery from a simple wound.

23*d*. Pulse 80. Edges of wound approximated by strips of adhesive plaster to facilitate closure. Diet increased, and patient is making rapid convalescence.

On the 5th of April, patient commenced sitting up, and walking about the ward. Complete recovery was both sure and rapid. The right half of the scrotum was much elongated from frequent distension by the hernial tumour, and it was found necessary to support the testicles in a suspensory bandage.

Until his discharge from the hospital on May 1st, patient's appetite was good, his strength and spirits excellent, pain and tenderness were absent over the site of the recent operation, and there were two natural movements of the bowels daily. Before leaving the hospital, a promise was exacted from the patient, that he would notify us of any untoward condition which might arise; but at present writing, May 26th, there has been no departure from the normal state to which he was restored.

The interesting features in this case, are: 1. Absence of the more characteristic signs of strangulation, viz.: Nausea, vomiting, vomiting of stercoraceous matter, pain in *scrobiculus cordis*, accelerated and wiry pulse, anxious countenance.

2. The spontaneous closure of a gangrenous solution of continuity in the bowel, sufficiently large to admit for a number of days the daily passage of gas in large quantities, and fæces by the pint.

3. The spontaneous return of the bowel to the cavity of the abdomen, some time subsequent to the closure of the opening in the intestine.

ARTICLE XXI.

TRANSVERSE FRACTURE OF PATELLA, AND FRACTURE OF SKULL, WITH LOSS OF BRAIN SUBSTANCE: RECOVERY. By C. J. CLEBORNE, M.D., Surgeon U. S. Navy.

JOHN EDWARDS, age 23, native of Massachusetts, private of marines, a hearty, muscular man of phlegmatic temperament, was knocked down on the night of 28th October, 1875, and was found lying near a railroad bridge in a state of insensibility. Two hours after the injury he was brought to the hospital, where an examination disclosed a compound fracture of the frontal bone, and a simple transverse fracture of the left patella. There were several trifling cuts about the head (the result of violence), besides a large, irregular Y-shaped wound. The tail of the Y, running towards the temporal fossa, was about one inch and a quarter in length, while the fork of the Y measured over three inches, and extended from the right supra-orbital notch to above the frontal eminence on the same side. The right supra-orbital arch, superciliary ridge, temporal ridge, and orbital plate were fractured. There was an irregularly shaped hole nearly an inch in length by three-quarters of an inch in breadth at its widest part (into which the end of the thumb could be readily thrust), which extended from the orbital notch upwards and outwards, and midway between the nasal tuberosity and the temporal ridge, from which a triangular piece of bone had fallen while conveying the man some two miles in a wheelbarrow, over a rough road to the hospital. After carefully cleansing the wound, tying two small arteries, and removing a few spiculæ of bone, the edges of the external wound were drawn together by silver-wire sutures, and dressed with an antiseptic lotion (fluid extract of arnica fʒj to f℥j of a solution of salicylate of soda), and twenty drops of fluid extract of arnica was directed to be given internally every three hours. At this time (2 A. M.) the patient was semi-conscious, would speak when loudly spoken to, but would immediately relapse into insensibility, partly due to intoxication, as the man had been drinking very freely. The transverse fracture of the patella presented no signs of external injury, and was probably the result of muscular effort made by the patient to recover his balance when the first blow was struck. As the swelling was very great from effusion into the joint, and the broken fragments were widely separated from this cause and from muscular contraction, the limb was temporarily placed in a fracture-box, and a lotion of lead and arnica applied.

Oct. 29. Patient semi-conscious; pulse 100; temp. 102.2°; wound livid and puffy; free, grumous, sanguinolent discharge. Continued dressing, and ordered milk diet. Knee-joint considerably distended.

30*th.* Patient speaks when spoken to, but does not like to be disturbed. Face puffy, and erysipelatous. Pulse 90; temp. 102½°. Knee less swollen. Dressed patella with adhesive strips (Pennsylvania Hospital plan), but it was found to be impossible to keep the edges of the fractured bone in apposition. Not having "Malgaigne's hooks," I devised the following apparatus: Two pieces of stout "binder's board" (cut semi-lunar at patellar ends) were moulded closely to the anterior part of leg and thigh; slits were cut in each splint, through which an equal length of the band of a Petit's tourniquet was passed and fastened at each end. The lower fragment of the patella was then firmly fixed in position; a strip of adhesive plaster 12 by 14 in. was warmed, and applied to front of leg, the upper end of the plaster being turned over the crescentic edge of the splint to prevent slipping; and the splint was then secured to the leg by means of adhesive strips and a spica bandage. The upper fragment having been forced down as far as possible, the thigh splint was secured in a similar manner, and as the base of the tourniquet (with a pad of lint under it) rested immediately over the patella, tilting was effectually prevented. The splints were gradually drawn together by screwing up the tourniquet until the edges of the broken bone were approximated. The whole limb was then placed on a straight back-splint, very slightly elevated, and the popliteal space was carefully padded to prevent pressure. Ordered patient's face to be dressed with mucilage of slippery elm, and twenty-drop doses of tincture of chloride of iron to be given internally every two hours.

31*st.* Patient in about the same condition. Pulse 64; temp. 101°. Continued treatment; loosened tourniquet, as apparatus became slightly painful.

Nov. 1. Delirious during night; face and wound less puffy; free grumous discharge; redness and swelling disappearing; stopped arnica.

2*d.* Dressed wound with a piece of common cap net, fastened to the skin on each side with styptic colloid this allowed a free discharge, while it nicely supported edges of wound. The part was then sprayed with a solution of salicylate of soda, and over the net was placed a single thickness of lint, saturated with the same solution; on this was laid a piece of oiled silk, and on top of the silk a single thickness of cotton wadding, thus making a light antiseptic dressing which effectually excluded the air. To this wadding (which was only removed to cleanse the parts by spraying) I largely attribute the rapid healing and slight suppuration of the wound.

3d. Pulse 60; temp. 101°. Redness and swelling of face and wound have nearly disappeared, and there is less discharge; knee comfortable; passed urine freely; bowels moved regularly.

4th to *15th.* Case progressed favourably; wound on forehead nearly healed; scarcely any discharge; knee comfortable.

16th. Patient had a very bad night; sudden change for the worse; conscious only at times; sighing and restless when awake. Pulse 50 to 55, irregular, and without much strength. As the man was very low, his ante-mortem statement was taken, and "extreme unction," the last rite of his church, was administered by the priest. Temp. 103°, reduced towards morning to 101°. Ordered milk-punch every hour, with digitalis and bromide of ammonium in full doses. Wound looks healthy, and there is a slight discharge.

17th. Passed a good night; appears much refreshed after a sound sleep. Pulse 62, full and strong; temp. 101°.

From the 18th Nov. 1875, to 9th Feb. 1876 (when patient was discharged to light duty) the case did well. For the first seventeen days after injury he lay like a log, with his eyes partially closed, perfectly apathetic, answering only in monosyllables when loudly spoken to, and manifesting no interest in himself nor in anything about him. Very little medicine or alcoholic stimulants were administered. He drank from three to four quarts of milk daily, and cared but little for solid food. He was an admirable patient, very docile, and to this and his phlegmatic temperament his recovery may be largely attributed.

Within seven weeks firm union of the patella had taken place, and the splints were removed. A recent examination (July 5, 1877) shows that the bones are united, with scarcely any perceptible irregularity of surface. The union appears to be *osseous*, and the limb, though now somewhat smaller in muscular development, can be used almost as well as the uninjured one. The fractured frontal bone has caused but little disfigurement; there is, of course, a considerable depression over superciliary ridge, with a bulging outwards of the orbital arch; but the man complains of no unpleasant sensations, nor of loss of memory (though his comrades think him less intelligent than he was), and he performs general barrack duty with satisfaction to his officers. It would be difficult to say how much brain matter was lost in this case. Those who brought him to the hospital declare that there "was a considerable quantity on his face," and probably a teaspoonful or two was lost afterwards.

Considering the comparative rarity of true osseous union in transverse fractures of the patella, the favourable result obtained in this case with such a crude apparatus, is of as much interest as the more serious lesion from which the man made such an excellent recovery.

Article XXII.

An Extraordinary Case of Biliary Abscess, communicating with the Right Brochus. By D. B. Simmons, M.D., Surgeon to Kanagawa Ken Hospital, Japan.

A. G., æt. 24, lantern maker, entered the hospital June 2, with the following history and symptoms:—

Two years ago a small swelling, of slow growth, accompanied by more or less pain, appeared in the right hypochondrium. After a time (of which the patient could give but an imperfect account) the skin over the tumour became thin and ruptured, giving exit to about two ounces of dark-looking matter. "Nothing more, as far as we could learn." This soon ceased, however, the opening closed, and, for a time, there was no further trouble from this source.

About six months ago pain was again felt in the locality of the former tumour or abscess. This time the disease took a somewhat different course; the swelling was less circumscribed, with no tendency to point externally as before, and the pain, instead of being limited, extended over a much greater surface, especially in the direction of the median line. By degrees it gave him more and more inconvenience, till he was obliged to give up his occupation. Soon after this his sufferings became very great, with exhausting night sweats and extreme oppression, referred to the region of the præcordia. In this condition he was brought to the hospital. A careful examination of the case put us in possession of the following additional particulars:—

His general expression was that of great suffering; the skin was of a grayish-white colour, and bathed in a cold perspiration. The pulse was frequent, feeble, and irregular. The sense of oppression before referred to was much increased by the least exertion, also by the slightest pressure over the epigastrium. He was unable to set up in bed or retain his position, even if aided by the nurse, because of increased pain in the epigastrium, consequent upon bending the body. By palpation a somewhat circumscribed swelling could be made out on the epigastrium, dipping down into the hypochondriac region. Indistinct fluctuation could be felt, with a sense of intervening air or gas, which was verified by percussion. On applying the flat hand to the swelling, a distinct fremitus could be made out. By the stethoscope this was confirmed, and a blowing sound, synchronous with the respiratory act, was heard, accompanied occasionally by a gurgling noise.

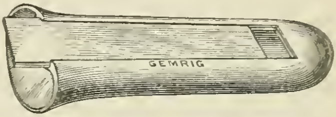
A careful examination was now made of the chest, with the expectation of finding pneumothorax, with more or less displacement of the lungs, as an explanation of the connection of the swelling with the respiratory organ. To our surprise we found nothing of the kind, but both lungs and pleural cavities in their normal condition. Percussion showed the heart pushed a little to the left; its action too was laborious, and its sound somewhat muffled. During the two succeeding days that the patient lived there was little change in the general symptoms, except exhaustion. As to diagnosis, we have to record simply *that there was none*. Of course abscess of the liver, circumscribed abscess in the peritoneal cavity, and biliary abscess were thought of, but by no possibility could we arrive at any conclusion as to the manner in which the air gained access to the tumour from the pulmonary organs.

Post-mortem.—An incision into the tumour, the walls of which had become attenuated, so as to consist of little more than the skin, was followed by the escape of a quantity of fetid gas. On laying open the cavity, as it now appeared, a quantity of flocculent pus was found burrowing down to the right and left. By a careful removal of this, the floor of the abscess was found to be the liver. Continuing our explorations into the right hypochondriac region, the handle of our scalpel suddenly dropped into the gall-bladder, in which were four large and two small stones. It is unnecessary to say that we had to do with a biliary abscess, and that the tumour or sac was the result of its extension to the locality before referred to. By sweeping the handle of the knife around the cavity or base of the abscess, it was arrested in an opening in the diaphragm. On removing the sternum, this opening was found to communicate with the middle mediastinum. This was filled, or nearly so, with the same flocculent pus as that of the abscess in the epigastrium. The pericardium was thickened and adherent to the heart. As the most interesting part of the problem remained to be solved, viz., the mode of entry of air into this space, we proceeded with great caution to complete the examination, so as not to deceive ourselves and others by a false opening into the lungs or bronchial tubes. It resulted in our finding an opening, which admitted the easy passage of a probe into the *right bronchus*, just within the mediastinum. We omitted to say that there was no fetor of the breath or expectoration, due, no doubt, to the small size of the opening. An easy explanation is now found for all the symptoms. It is probable that the first abscess was due to the same cause as the last, but resulted in a spontaneous cure.

Article XXIII.

A new Rectal Speculum. By Thomas B. Reed, M.D., of Philadelphia.

In the examination and treatment of diseases and injuries of the rectum two difficulties constantly arise to annoy and embarrass the operator. Either his speculum is too small, or is so constructed as to allow the loose mucous folds of the bowel to overlap or fall through the fenestrum, or between the wires or blades of the wire or valvular speculum, preventing an accurate investigation of the condition of the parts; while the *rotation* of the instrument is attended with the most excruciating pain, rendering the use of an anæsthetic almost absolutely necessary. The diseases and injuries of the lower bowel and anus are of frequent occurrence, and often of great surgical importance, and, possibly, from the unsatisfactory way in which they are often treated by the regular surgeon, furnish abundant material for the depredations of the quack. Perhaps *want of room* in making examinations and applying remedies has had much to do with the unsatisfactory results of rectal surgery. There is no reason, pathological or anatomical, why a *large, roomy* speculum should not be introduced into the bowel. No injurious results follow, and since adventurous surgeons have not hesitated to introduce a hand and arm into the rectum, a moderate-sized speculum may be safely trusted. After numerous trials of various sizes of the speculum, figured below, and to which I desire to call the attention of the surgical profession, I prefer one from one-third to one-half greater calibre than the ordinary rectal speculum.



The special advantages claimed for this instrument are the entire comfort to the patient and the ease and satisfaction to the surgeon with which exploratory examinations and applications can be made. The plate glass window (flat on face) with bevelled edges moves closely and smoothly, fitted upon grooves on the inner side of the instrument, and preserves to a great degree the cylindrical shape of the outer surface. The speculum being in place and gently rotated, affords, without pain to the patient, ample view of the entire bowel surface. The point at which the operation is to be done or application made having been determined, the window is gently and painlessly withdrawn, and the field is ready for knife, needle, probe, ligature, caustic, or cautery, as the case demands. Owing to the increased calibre of the speculum, and consequent stretching of the bowel, I have not found any special disposition of the parts to fall into the fenestrum, and after the operation is done the window can readily be replaced or the speculum withdrawn open, without any inconvenience to patient or operator. If required, a plunger could readily be adjusted or finger inserted to assist in the withdrawal of the instrument, but I have not found it necessary.

From very satisfactory personal experience with this instrument for several years I do not hesitate to recommend it to the practical surgeon, feeling assured that any advance in professional knowledge or surgical appliance is the common property of all.

The speculum is made of Brittania-metal, nickel plated. Length, $3\frac{1}{2}$

inches. Diameter, base, $1\frac{1}{8}$; top, $\frac{7}{8}$. Length of window, 3 inches; mean width, $\frac{9}{16}$ of an inch. It is made by J. H. Gemrig, of Philadelphia, and costs about the same as an ordinary rectal speculum.

ARTICLE XXIV.

CASE OF INCLUDED FŒTATION. By W. E. ROGERS, M.D., of Memphis, Tennessee.

ON the 8th day of June, 1875, I was requested to operate on Jefferson Walker, of Coahoma County, Miss., for stone in the bladder. I invited Drs. Jones, Nuttall, White, Sim, Morgan, and Blair to witness and assist in the operation. Dr. Heber Jones administered the ether. Dr. J. H. Nuttall took charge of the staff. I performed the lateral operation. Having satisfied myself that the knife was well in the groove, I passed it on towards, and, as I thought, into the bladder and withdrew it. On introducing my finger to explore for the stone, I discovered to my mortification that the knife had not entered the bladder. I readjusted the staff, and directing Dr. Nuttall to hold it firmly against the pubis, I passed the knife into the bladder. Upon examination I found a stone as large as a guinea-hen's egg, which was extracted without difficulty. Nothing unusual occurred until the second day after the operation, when the mother of the boy handed me a folded paper, saying, "Here, Doctor, is something that come from the cut you made in Jeff." Upon examination I recognized the contents of the paper to be fœtal bones. The lower half of both femurs, two ribs, an ulna, half a radius, a complete scapula, and numerous particles of osseous debris. I invited several members of the profession to visit the patient with me and to explore the wound for the remainder of the skeleton. Drs. Armstrong, Jones, Morgan, Churchill, and Nuttall accompanied me, and we could with the probe feel the remaining bones in a sac which was situated between the prostate and perineum. The patient complained of great pain during the examination; and having satisfied ourselves of the existence of more bones we desisted (thinking the case did not demand instrumental delivery), with the determination to open the rectum at some future day, and deliver, if the bones did not pass out through the wound. This they continued to do until I collected fourteen perfect bones and seventy-eight pieces of bone.

The condyles are perfectly formed, and the epiphyses are completely ossified and firmly joined to the shafts of the long bones. The presence of the bones and discovery of the sac accounted for my apparent blunder in the operation. I felt the knife pass into the sac, which I mistook for the bladder.

REVIEWS.

Art. XXV.—*Traité Clinique des Maladies de l'Uterus.* Par J. N. Demarquay, Chirurgeon de la Maison Municipale de Sante, Commandent de la Legion d'Honneur, etc. etc.; et O. Saint-Vel, Laureat de l'Academie de Médecine, etc. etc. 8vo. pp. 610. Paris, 1876.

A Clinical Treatise on Diseases of the Uterus. By J. N. Demarquay and O. Saint-Vel.

We have here another of those works which have of late years so frequently appeared in France, which, in design, extent, and character are worthy of the subject to which they are devoted, and which give abundant evidence that the extraordinary impulse given to the study of gynæcology by Recamier is yet exerting its influence.

So far as the author first named on the title page is concerned, the work is posthumous. The name of Demarquay has long been well known in connection with this department of medicine. Death surprised him, we are told in the preface, "in all the activity of life and in full enjoyment of surgical renown," and his colleague, in fulfilment of a duty with which he was especially charged, presents here a treatise upon uterine diseases, stamped with the ideas of the deceased teacher. The original design, made and discussed by the two, was to publish in two volumes a complete treatise on the pathology of the female sexual organs outside of the puerperal state. The plan of the present volume had been made, and the details fixed, when the decease of Demarquay occurred to delay the work and to throw doubts upon its completion.

The introductory chapter of the volume under consideration is occupied with considerations of a general nature upon the inflammatory affections of the uterus. It lays out the plan for the consideration of this branch of the subject, and serves to indicate briefly the views of the authors upon points in regard to which there is very wide diversity of opinion among gynæcologists. The reader scarcely enters it before he comes upon a most decided protest against an over-abundant nomenclature, which results from considering as distinct morbid states what are held to be only different stages and phases of the same malady. Congestion, fluxion, engorgement, induration, hypertrophie engorgement, and the soft engorgement of Duparcque, as well as areolar hyperplasia are here but different stages or results of the inflammatory process. The "fictitious line of demarcation which separates one from the other is but a thread which the slightest pressure of facts serves to break." The divisions are artificial, and "cannot be true precisely on account of their complexity." The statement is then made that no support for this multiplicity of division of the subject can be founded upon the intimate pathological condition of the uterine tissues. Numberless questions can be propounded, the answers to which are so far from lacking that they encumber the ground, yet "vary with the theoretic views of each author," and show that a scientific base of study is lacking because of the imperfection of our knowledge of pathological anatomy.

> "If we seek to penetrate the minutiæ of phenomena which the microscope alone can reveal, we arrive only at indeterminate notions, manifesting the vagueness of the theories of inflammation which succeed each other every twenty years. To Robin's theory of the genesis of new tissues in an effused blastema, has succeeded the cellular proliferation of Virchow, and now the passage of globules through the vascular walls, or diapedesis, as taught by Cohnheim, but of which passage all the conditions are not yet completely known, seems about to play a considerable rôle in the theory of inflammation."

Finding then a scientific base lacking, and believing that confusion and want of precision result from the usual multiform division of the subject, the authors prefer to treat it entirely in its clinical aspect, basing the divisions they make rather upon the symptoms presented than upon the changed condition of the tissues. They divide metritis into acute and chronic; the former again into endometritis and parenchymatous; the chronic form is subdivided into endometritis hemorrhagic and catarrhal, and parenchymatous metritis, and parenchymatous and catarrhal inflammations of the cervix. A separate chapter is devoted to the disease in virgins on account of special conditions relating to diagnosis and treatment in that class of subjects. In this manner of treating the subject they are in close accord with Gallard in his late clinical work, and remain true to the doctrines of the French, or rather Parisian, school of uterine pathology.

We pass entirely over the chapters upon the acute forms of the disease, and will only touch briefly upon some points of interest relating to the chronic. The consideration of *corporeal endometritis* opens with a repetition of the statements that the absolute divisions, made for the sake of simplicity and clearness in teaching, do not exist in nature, that clear uncomplicated cases are rare, that each form of the disease bears more or less of the characteristics of others. The first question is as to the frequency of occurrence of inflammation of the mucous membrane of the body of the uterus. The authors are very far from supporting the extreme views of Bennett as to the great rarity of this affection, possibly they pass a good way over the median line towards the other extreme.

> "Either simple or complicated chronic endometritis of the body is met with often, and we agree with Aran that it is a very common affection, observed daily [*à chaque instant!*] in practice."

There are two well-marked forms of corporeal endometritis, the hemorrhagic and catarrhal, each having a leading well-marked symptom, hemorrhage and leucorrhœa. Of the former the hemorrhage is the preponderating, and, indeed, one reliable symptom, compared with it all others assume a secondary position and value. Upon this point the authors are in agreement with the great majority of writers. Barnes, however, says that pain is a prominent symptom, that it is severe, almost constantly present, and cannot be overlooked any more than the hemorrhage.[1] The pathological condition giving rise to this hemorrhage consists in the well-known granulations or fungosities seated upon or growing from the uterine mucous membrane. But we find nothing to throw any light upon the question as to whether such hemorrhages may not occur independent of these granulations, that is, be the expression or effect alone of the endometritis, and this is the more surprising since Gallard, an author frequently quoted in the work, denies the existence of these bodies, and yet recognizes a hemorrhagic metritis. Further, the authors frankly admit that post-mortem proof is lacking; that the granulations have been found in the uteri of patients who died of other diseases, and whose antecedents were unknown; that, therefore, the pathological anatomy of these bodies "is limited, in a manner, to the examination of specimens removed by the curette."

---

[1] Diseases of Women, p. 474.

An important point connected with the pathology of these hemorrhagic cases, dependent upon granulations, is the softening and thinning of the uterine wall which accompanies them, and it is an extremely important point in reference to the treatment of the growths by removal. Is this change in the walls a constant accompaniment? does it precede the alteration of the mucous membrane, or is it the consequence? For the resolution of these questions we must await further researches.

The one remedy of the authors for this form of disease is abrasion of the granulations by the curette, a remedy from which many distinguished gynæcologists withhold assent, and some even denounce. There are some who reject the curette as a dangerous instrument, while recommending other measures which their colleagues would hesitate to employ. Again, there are some who seem to have forgotten that the leading question in regard to any therapeutic measure is "does it cure?" To denounce a measure of this kind because it is "unscientific" would seem the height of absurdity, in view of the fact that one of the leading maxims of the healing art is to "remove the cause." If it is "unscientific" because mechanical, then a large portion of surgery must come under the same condemnation. There is one striking fact, however, in favour of this operation: some of those who reject it, even denounce it, testify strongly to the fact that it effects immediate and permanent cures. They explain its good effects as being by an "alterative effect upon the uterine mucous membrane," or by the production of a "substitutive inflammation."[1]

Besides the support of leading authorities of our own country, such as Thomas and Sims, the authors have such names as Maissonneuve, Trousseau, and Nélaton to sustain them in the statement that abrasion by the curette is a legitimate operation of gynæcological surgery which effectively cures a troublesome and a dangerous affection which has no tendency in itself to spontaneous cure.

For the operation the authors use and figure the original curette of Recamier, which we believe to be much inferior to Sims's instrument, as with the latter perforation of the uterine walls would be much less likely to occur, and this is the only accident possible. The operation is not followed by application to the uterine walls of nitrate of silver, or any other caustic, unless under exceptional circumstances.

Of the second and much more frequent form of corporeal endometritis, the catarrhal, leucorrhœa is the symptom of prime importance. The character of this discharge varies greatly as to quantity and quality in different subjects. It is said to be less viscid than discharge from the cervix, more or less fluid, very often streaked with blood, and sometimes entirely purulent. We find no allusion to a rust-coloured discharge, which Bennett held to be as characteristic of this disease as is rusty expectoration of pneumonia. When the discharge is purulent its character no longer indicates its source—further investigation is required to discover that. Especial attention is called to the fact that the discharge is often of acrid and irritating nature, producing vaginitis with profuse discharge from that canal, and with other consequences likely to prove disastrous to the peace of families unless understood and explained by the physician. This may be only an occasional feature of the case:—

---

[1] See Gallard, Scanzoni, Atthill, Courty, Siredy. The latter objects almost as strongly as Gallard to abrasion, but honestly says: "Experience, however, responds victoriously to these objections, and it is incontestable that, after the operation, the patients recover in the immense majority of cases and within a tolerably brief period." —Art. Metrorrhagia: Nouveau Dict. de Méd. et de Chir. Pratiques, t. xxii.

> "In women, the subject of uterine catarrh, the virulence of the discharge may exist only at certain times, under the influence of particular circumstances, such as the congestion of the menstrual epoch, the excitement of the dance, or of a repast seasoned with wines and liquors. Thus sexual connection with a female affected with such a leucorrhœa would have morbid consequences only for those individuals who approached her at certain times."

The prognosis of corporeal endometritis is closely in accord with the general opinion of authorities. Without accepting Scanzoni's extreme views as to its absolute incurability, the authors say that even in its simple form it is obstinate: it often endures for years, profoundly deteriorating the health, and this in spite of remedies addressed to it. Besides the explanations of this difficulty of cure, so evident in the functional activity of the organs concerned, is the far more potent factor of constitutional conditions and tendencies.

> "Primitive chronic catarrhal metritis is met with not always, but most frequently, in women of scrofulous or lymphatic constitution, tainted with tuberculosis, living in force-depressing hygienic conditions; or, again, in those having the herpetic diathesis, an influence which not only acts as a predisposing cause, but impresses upon the disease a still more obstinate character."

At the head of the list of remedies addressed locally to the cure of this affection stand intra-uterine injections—a remedy which

> "Has not been able to establish itself definitely on account of the opposition it has always encountered; nor has it been rejected on account of the support it has received. Maintained by the authority of Recamier, Velpeau, Retzius, Tilt, Ricord, Aran, Courty, Gallard, it has in our day been combated by Oldham, Mayer, Gaillard Thomas, H. Bennett, Gosselin, Depaul."

The serious and even fatal results produced by intra-uterine injections are then referred to more in detail, and among other cases we find that of Haselberg, in which the presence of iron was demonstrated in the Fallopian tubes, with a reference to this Journal (April, 1870, p. 565). The various precautions taken by the advocates of injections, such as those of Gallard, are then alluded to, and they are admitted to diminish the dangers of the procedure, but they by no means abolish it, and this remedy is therefore rejected, whatever may be the form of liquid used, not even excepting solution of perchloride of iron in hemorrhagic metritis.

The one local remedy of the authors for this disease seems to be the application of the solid nitrate of silver. This is effected by a special instrument, an enlarged Lallemand's *porte-caustique;* and we find no mention of the introduction of a piece of solid caustic to remain and dissolve in the uterine cavity—the application *à demeure* of Courty—nor of applications of nitric or chromic acids, or acid nitrate of mercury, or strong tincture of iodine, or pencils of sulphate of zinc or copper.

The chapter upon *chronic corporeal parenchymatous metritis* is a long one, and we can touch upon but a few points. The too frequently forgotten influence of diatheses, the herpetic, the scrofulous, the syphilitic, upon the local disease figures largely, as usual in French pathology, both in an etiological view and as influencing the effect of remedies. Nevertheless the authors are not extremists, but agree closely with the reasonable doctrines of Courty and Gallard. To the doctrine that the diathesis is the one predisposing, active, and preponderating—"the lesion is in the uterus, but the disease is in the system"—they do not yield assent, clinical observation not furnishing support to the theory. They distinctly deny, too, that even the most experienced gynæcologist is able to distinguish, by external characters alone, eruptions due to herpetism and those the result of simple uterine inflammation.

> "But is this saying that chronic metritis is not allied to herpetism and is not influenced by it? Not at all. Clinical observation, in a tolerably large number of cases, shows a sufficiently close relation between them to justify us in maintaining that the diathesis acts as a predisposing cause, and to affirm that it exerts an unfavourable influence upon the uterine affection. Clinical observation shows further the very important consideration due to the diathesis in the treatment of the uterine lesion. We know that in certain females each menstrual period is accompanied with an eruption of pustules of acne or herpetic vesicles around the mouth and the vulva. Herpetic women, the subjects of leucorrhœa, whether they have cutaneous manifestations or not at the time of menstruation, present then modifications of the leucorrhœal discharge. The virulence which it then acquires is attributed to the diathesis.
>
> "The diathesis gives to the metritis a more chronic form; it adds an element which renders the cure more difficult. There are patients in whom medication directed to the uterine disease gives only half results. The local affection, after numerous oscillations, tends to continue indefinitely. The treatment of the diathesis, in modifying consecutively the metritis, shows the close connection between the two affections of which the latter is dominated by the former."

In regard to the syphilic diathesis we find this much of interest as favourable to the views of Dr. Emil Noeggerath,[1] of this country, although nothing is said as to the influence of this contagion as affecting fertility.

> "There is no doubt that blenorrhagia spreads from the vagina to the uterine cavity, and extends, by means of the Fallopian tubes, even to the ovaries. It is then a cause of specific catarrhal metritis, and can also, secondarily and consecutively to the phlegmasia of the mucous membrane, produce inflammation of the tissue of the uterine walls, in other words, to parenchymatous metritis."

In the consideration of cervical parenchymatous metritis we regret to find nothing at any length, and nothing definite as to the differential diagnosis between this pathological condition and the early stages of cancer, a most difficult point often particularly perplexing to the young practitioner, and one upon which he would look for assistance to such a work as this. The omission is the more surprising because the difficulty is recognized, and indeed Lisfranc is boldly charged with having committed the error of confounding the two conditions, and the statement is made that thus only can be explained the numerous amputations followed by cure reported by that surgeon! (p. 100.)

Special surgical measures addressed to special stages or forms having been designated, a chapter is given upon the treatment of metritis in general. It opens with a quotation from Scanzoni as to the "excessive rarity" of a radical cure of the disease, a pessimist view "which seems in contrast to the luxury of therapeutic means employed," but to which the authors give a qualified assent. Chronic metritis, catarrhal or parenchy-

[1] Latent Gonorrhœa. Transactions of American Gynæcological Society, vol. i.

matous, has no tendency to spontaneous cure. Again the fact is insisted upon that the local lesion is not all the story, it is sometimes an accident dependent upon and maintained by the constitutional condition. Therefore both local and general remedies of which sometimes the one and sometimes the other are of the chief importance. Treatment is also to be carefully directed, according to two well-marked stages of the disease, the one "congestive vascularization," the other "anæmic induration."

The antiphlogistics are very important we are told in the earlier congestive period and in the course of the disease, when at the menstrual periods there is a return of the more acute symptoms. Leeches head the list of this class of remedies, and the authors mention only to reject scarifications, "more or less difficult to make well, which have no advantage over leeches and which participate in the inconveniences, sometimes so grave, of traumatic lesions of the uterus." Tepid baths, cataplasms, and emollients come in aid of depletion, and regret is expressed that the immediate baths of the cervix, counselled by Melier, and the vaginal cataplasms of Cruveilhier and Amussat, have fallen into desuetude! Dr. Thomas has made some pertinent remarks upon the mental influence of such disgusting remedies as filling the vagina with linseed meal poultices! Astringent injections have their place and for the ulcerations, when they do not yield to the treatment addressed to the metritis, as they usually do, direct applications of nitrate of silver. But as an alterative and resolvent the actual cautery (*fer rouge*) is of prime importance, being a remedy "which acts less upon the determinate seat of a lesion than upon the morbid *ensemble*, which constitutes chronic metritis." For this remedy we have to thank Jobert.

> "Gynæcology is indebted to Jobert for two grand surgical triumphs; *the operation for vesico-vaginal fistula*[1] and the application of the actual cautery to diseases of the uterus!"

Due precautions are insisted upon in the use of the hot iron to prevent the accidents which may follow its use, such as peritonitis and vaginal cicatrices. Fatal results, it is stated, have followed in some cases, as, indeed, what operation upon the uterus have they not followed?

> "Cauterization is used to fill two indications in chronic metritis as different as the two periods of the disease. When the uterus presents a voluminous reddish, soft cervix, bleeding easily, or fungous ulcerations, the cauterization should be energetic and profound to obtain the resolutive effect from separation of the eschar and cicatrization of the wound. In the second stage, corresponding to the anæmic condition of the organ, the cauterization should be superficial and light, which tends to reawaken the vitality of the tissues, and should be applied oftener. In the first degree of metritis, which more especially demands the actual cautery, the destruction is never profound, and the tissues beneath the part touched are rather modified than destroyed. Thus it is often necessary to resort to a second or even a third application, allowing, however, such an interval as will permit us to judge of the results attained."

The administration of ergot and iodine, the only internal agents exercising a direct action on the uterus, is advised, and then follows the general indication which affects the organ only secondarily and indirectly. It comprises of course a large number of pharmaceutic remedies, hygienic measures, and treatment by natural waters. The medicines adapted to the cure of the chloro-anæmic condition which accompanies uterine disease, and all the measures for improving enfeebled digestion come in play, but receive from our authors only mention. The one therapeutic agent for them is water; hydrotherapy is the keystone to the arch of the treatment of chronic metritis, and to its consideration are devoted some twelve or thirteen pages of the work. Some space is occupied with remarks upon the hygienic influences of hydrotherapic establishment and upon sea-bathing, but the greater part is of course taken up with the different mineral springs and their adaptation to different forms of the disease, and to the various constitutions of patients. We only quote one paragraph of general bearing. After stating that the treatment by mineral waters has no special, much less specific, action in the cure of chronic metritis, the authors say:—

---

[1] The italics are ours.

> "This explains the considerable number of waters of different composition employed in this disease. They are not and cannot be prescribed in a routine fashion, for they are either useful or injurious. They are to be addressed less to the disease than to the patient with her temperament, her morbid susceptibilities, her constitution, her hereditary or acquired peculiarities. The variety is also explained by the difference of indications according to the periods of the metritis, according to the predominance of certain symptoms and the existence of complications which are so frequent. To throw some light upon this complex subject, and looking at it from a clinical stand-point, we may say that the hydro-mineral treatment of chronic metritis corresponds to three great divisions; the first comprising the indications and the contra-indications arising from the entire absence or the persistence of the congestive element; the second the diathetic indications; and the third special to the predominating conditions of the nervous element."

The various springs of Europe do not much concern us here, and this presents for our own country a field of study which has not yet been much worked. We cannot but regret, too, that our hydropathic establishments are not yet generally in such hands that the practitioner can send his patients to avail themselves of their hygienic advantages and be sure of their obtaining scientific treatment of their uterine disease, to say nothing of the boarding-house element which is the prevailing spirit of most of these establishments.

The second part of the work is devoted to *Fibrous Tumours of the Uterus*, one of the most interesting fields of gynæcology, "comprising in its complexity, problems of anatomy, difficulties of diagnosis, and the indications of operative medicine." In the first chapter, the subject is considered in general; the origin of uterine fibroids is traced, the probable influences of various causes considered, their course and minute anatomy described, together with their configuration, vascularization, connection with the uterine tissue, their nutrition, and growth. Afterwards, the pathological changes they undergo are considered in detail, such as œdema, softening, calcareous degeneration, suppuration, gangrene, and consequent piecemeal expulsion, thus effecting a natural cure, of all or most of which interesting examples are reported. This chapter furnishes a very complete *résumé* of our knowledge of the physiology and pathology of these tumours. Next follow two chapters upon the relation of uterine fibrous tumours, first to pregnancy, second to parturition and the puerperal condition. It may be said that, if the subject in general is of interest, the particular subdivision of it is vastly more so, from its obstetrical and its surgical bearings, as well as from the fact that such cases may at any moment fall under the observation of any practitioner. But, important as this subject is and interesting as these chapters are, we can only give a general sketch of them or touch here and there upon a few special points. The difficulties of a differential diagnosis between these tumours and pregnancy are first considered, and cases detailed where men of very large experience were deceived, and one case in which gastrotomy was performed for extra-uterine pregnancy, and only to find a fibroid! These difficulties are all increased when the pregnancy coexists with a tumour; but, as to the frequency of this complication and the consequent influence of these tumours upon fecundity, there are no statistics but those of West.

The course of a pregnancy may be entirely uninfluenced by the presence of a tumour, of which there are multiple instances; or, again, abortion or premature delivery may be occasioned, the former much the more frequently, and hemorrhage or inextensibility of the uterine walls are the immediate causes of the accident, but the location of the tumour has very much to do with the production of this result.

But, reciprocally, the pregnancy may influence the tumour, and the variety of changes occasioned in it by this physiological condition are considered. Briefly, the tumour may undergo no change, may change very much in consistence, softening internally or peripherally, in size and vascularization, and after the termination of the pregnancy it may and most often does return to its original size, or, more rarely, it may disappear altogether, undergoing an involution similar to that of the uterus itself, or taking on suppurative action to which disintegration follows. However, "the cases of spontaneous cure of these tumours, which science possesses, are almost all outside of the puerperal state." As to what particular change a tumour will undergo during pregnancy, as to what particular signs or symptoms would lead us to look for one change rather than another, we do not know; this is one of the blanks in this subject which remain to be filled.

But, if the reciprocal influences of pregnancy and tumour are uncertain, still more so is the effect of fibrous tumours upon labour. There may be no influence at all, labour being completed and the tumour only discovered after it is over, or the pelvic canal may be so blocked as to render delivery impossible, and the Cæsarean operation the only resource. The position of the tumour is, of course, a factor of great importance in this respect. Extra-uterine, sub-peritoneal, it does not at all interfere with uterine action; cervical and polypoid, it is subject to the resources of surgery. But this fact is apparent from the numerous cases detailed, and it is of the highest practical importance that, in cases where the tumour occupies the lower segment of the uterus, is sessile, and where it apparently presents an insurmountable obstacle, delivery may nevertheless take place in the most unexpected manner. Men of experience have deemed the Cæsarean section imperative when, spontaneously, or with some manipulation, delivery was effected, so that we may say of these cases, as Lister said of injuries to the head, "if none are so insignificant as to be neglected, none are so severe as to be despaired of." The mechanism of the happy turn of affairs in these cases is by a rising or pushing of the tumour above the brim of the pelvis. In other cases, the obstructing body has undergone such a degree of softening that, as the child is pulled down, after version or by the forceps, it yields and allows it to pass. Particulars of all these different forms of complication are given, and full consideration devoted to this most interesting subject, but into these we cannot go.

The chief accident caused by these tumours after labour is hemorrhage. Not a frequent complication of pregnancy, it is frequent post partum, as must be evident from the interference of the tumour with uterine contraction. When the placenta is seated directly on the tumour, profuse hemorrhage is almost always present. Yet, in illustration of the uncertainty of everything in relation to these tumours, we may mention a case reported by Dr. Chadwick, of Boston,[1] where, with this implantation, no post-partum hemorrhage occurred, and a case is known to us where there was none after two labours in which uterine inertia was so pronounced as to necessitate the use of the forceps.

In a case of pregnancy complicated with tumour, what course is the practitioner to pursue? So far as the tumour is concerned, to abstain from interference. This is the rule plainly laid down by the authors: "Absolute necessity alone can authorize a surgical operation upon a fibrous tumour in a gravid uterus," and then only in favourable circumstances, which, of course, are location in the vagina and more or less pedicellization.

We are surprised to find, however, that a similar line of conduct is indicated in regard to obstetrical interference, and, as the question is so important and so practical in its bearings, we quote the work in full, although the extract is somewhat lengthy.

> "Obstetrical intervention, of which the end is the termination of the pregnancy, is only justified by urgent motives when compression of the bladder and the rectum absolutely impede their functions, and when with or without the phenomena of internal strangulation the suffering and the hemorrhage occasion general symptoms indicating a speedy fatal termination. The cases are very rare where abortion thus presents itself as a last resource. Without being able to rely absolutely upon it, intervention should be deferred until the time of parturition in hopes that softening of the tumour or change in its location, often brought about by labour, as well as modifications of form of the uterus after rupture of the membranes will permit the expulsion of the child. A very large number of observations demonstrate that if a fibrous tumour has not interrupted pregnancy before the sixth month there is every chance of the patient going to full term. If circumstances may sometimes authorize abortion the production of premature labour cannot be justified by any motive. Everything, on the contrary commands abstention. The fœtus, the development of which has not been interfered with by the tumour, may, at term, meet with some one of the fortunate chances which parturition offers. If it should be otherwise, which it is difficult to affirm, premature labour only brings on the accidents sooner and in conditions equally disadvantageous. The engagement and passage of the child with a sessile or impacted fibrous tumour reducing the diameters of the pelvis is not any easier than at the ninth month. It will be necessary to interfere with the forceps, the perforator, the cephalotribe, or version, an interference to be regretted with a healthy uterus, far more perilous from its ulterior consequences with a uterus in a pathological condition.
>
> "Intervention in pregnancy and labour complicated with fibrous tumours cannot rest upon fixed rules laid down in advance. The contingencies are largely unforeseen, and the indications vary with each particular case. There are, as Paul Dubois said, accidents and complications which it is not possible to anticipate, which defy all calculation and leave the practitioner free to the inspirations of the moment and to the too frequently insufficient resources of his art. In pregnancy with deformed pelvis, knowing the diameters of the fœtal head and of the pelvis, we can draw conclusions almost mathematically certain and establish beforehand fixed rules for our conduct. In pregnancy with fibrous tumour nothing is absolute, everything is relative. Delivery is possible or impossible, and in advance we can absolutely affirm neither the one nor the other of these eventualities."

It may seem presumption to take issue with the teachings of a work based upon clinical facts or decline to accept the doctrines of men of large experience. Yet we cannot but think that there is far too much of the absolute here laid down in regard to this matter. If we have no clinical facts to oppose to the doctrine here laid down we can at least appeal to the authors themselves and rely for support upon general principles. Thus, in a preceding page, we are told that interference during pregnancy with a pedicellated tumour is justified when *it threatens by increase of size* to become later a cause of dystocia. If the argument is good in one case why not in the other? Moreover, if we are to wait in reliance upon "chances," as here taught, why not act and give the chances to the mother, as is her right in positions of this kind? Again, we cannot, with all due deference, accept the doctrine that, as a general rule, delivery when prematurely excited will not be easier than at full term, and with less risk to the mother. We think that British and American authorities would favour interference with the pregnancy far more strongly than the rule here laid down.

---

[1] Transactions of American Gynæcological Society, vol. i. Here will also be found an interesting paper by Dr. Byford, of Chicago, on Spontaneous and Artificial Destruction and Expulsion of these Tumours.

Obstruction of the pelvis sometimes occurs, of course, to such an extent that only the Cæsarean operation remains. Lambert's statistics of fourteen operations are given; seven children were saved, thirteen times the issue for the mother was fatal. Mayor, of Geneva, saved both mother and child, and Tarnier has reported another fortunate case of Duclos.

But one other and most hazardous resource remains, the enucleation of the tumour during labour. The authors know of but two cases: one by Braxton Hicks,[1] mother and child saved; one by Danyau,[2] much more difficult, mother saved, the child had been dead some days.

The subject of tumours is continued in the following chapter on *intra-parietal fibroids and fibrous polypi*, the pathology of which is fully given, and that rare form, "the fibrous polypus of intermittent appearance," described and commented on. In the diagnosis of intra-uterine tumours Huguier[3] is followed very closely and at considerable length as to the use of the sound. At the close, however, the authors do not hesitate to express considerable reservation as to giving full assent to his doctrines, and plainly say that we shall not demand of this useful instrument more than it can render—

> "It seems as if Huguier, putting himself imaginatively in presence of various intra-uterine tumours, sought to define the particular conditions for the diagnosis of each."

Removal of polypi by the chain écraseur is the preferred operations, but in introducing the subject of operative procedure we find the following practical and conservative remarks:—

> "Before speaking of the different operative procedures applicable to pedunculated sessile or interstitial tumours we must lay down the precept that there should be entire abstinence from all manœuvres intended to produce descent of the uterus. This descent brings the organ more within reach of the eye and hand of the operator, but this advantage should be sacrificed on account of the dangers it causes to the patient. . . . . Formerly, when the uterus was pulled down by hooks implanted in it or the tumour until the cervix reached the vulva, operations, by whatever cause necessitated, were followed by serious accidents. . . . . Since forced descent of the uterus has been abandoned operations upon it have lost much of their gravity."

---

[1] Lancet, 1870, July 30.

[2] Archives de Médecine, April, 1851.

[3] De l'Hysterometrie et du Catheterisme Uterin, 1865.

We pass over minor points to the more important one of *enucleation of interstitial fibroids.* The history of the operation is given and the different procedures detailed, and then the authors express themselves as follows:—

> "Let us leave now the operative measures, however well conceived, and attempt an appreciation of the results they have yielded. We can say that they have not been generally successful. A strong argument against enucleation is the uncertainty of diagnosis. The situation of the tumour may be determined; its connections with the uterine tissue and its relations to the peritoneum cannot be appreciated. What are the extent and the degree of resistance of the connections of the fibroid? What is the thickness or thinness of the uterine tissue interposed between it and the peritoneum? If no case has yet occurred in which death took place on account of opening the peritoneal cavity the possibility of this lesion has been, nevertheless, present to the mind of the operator: and often, if he has succeeded in avoiding this accident, good fortune has had its share in producing the result. . . . . The impossibility of determining the conditions for extirpation of intra-parietal fibroids entails a series of unfavourable chances, of which hemorrhage is not the least.
>
> "Besides the danger which accompanies the enucleation of fibrous tumours of the uterus there is another element of the question worthy of consideration, it is to inquire as to what becomes of the patients operated on who do not die at the time. . . . . M. Demarquay has operated upon four and has lost three of them, one after six weeks, one after two months, and the third after twenty months, but all three from the effects of the operation."

They then quote West and Sims as to the often long duration of life with these tumours, the amenability of many of their attendant symptoms to remedies, and conclude that "the operation is condemned equally by the considerations presented and by statistics, although all the unfortunate cases have not been published." Then, in addition to the statistics of West, are given the cases collected by Münnell—

> "These cases number 22; total enucleation 17, partial 5. Three cases only terminated fatally; they belong to Sims, Yeld, and Spiegelberg."

It is easy to see, as the author says, that these statistics are very incomplete since Sims, as quoted before, acknowledges three fatal cases, and the three fatal cases of Demarquay are not included.

We looked here in vain for any notice of the other and far safer plan of gradual enucleation of these tumours by incising their capsules or partially separating its attachments from the uterus, and then waiting for a time the effects of ergot and gravity. We found it afterwards, however, in the chapter on the medical treatment of these tumours barely mentioned as "a measure which has been advised by surgeons."

We had hoped to find in the fifty pages devoted to the consideration of *fibro-cystic tumours of the uterus* something new upon this interesting subject, upon which so much light yet needs to be shown. We were disappointed in our hope. The history of fibro-cystic tumours of the uterus, we are told, is yet to be written; their pathological anatomy is imperfect, their symptomatology obscure, diagnosis impossible, and their origin unknown. As the authors, at the outset, state that they have never met with any of this class of tumours, perhaps we ought not to be critical, however much surprised we may be at such a fact. Upon this subject they follow closely, in pathology, Cruveilhier, Virchow, and Kœberle, and confess that it is still undecided whether these bodies are solid fibroids, undergoing cystic degeneration or change, or growths of an entirely new character, without, however, hinting at the possibility of both being true. They go at very considerable length into the subject of diagnosis, and divide it into two sections: first, anatomico-pathological; second, to decide the question whether it be operable or not; the conclusion being about that of the doctrine laid down by Peaslee for ovariotomy, that until the operation is begun an absolute diagnosis that the case is not a fibro-cystic tumour of the uterus cannot be made.

But on this point of the subject we find some notable omissions which could not escape the observation of any one accustomed to the text-books and treatises of our own country. Thus, *tumours of the broad ligament* receive but the merest mention, and in such a manner as to convey the idea that they do not attain a greater size than that of an apple or orange! [p. 107] while the extraordinary statement is made that—

> "Tumours of the broad ligaments are ordinarily consecutive to alterations of the ovaries or of the uterus, or propagate themselves to one of these organs if at first primitive and isolated."

As points of differential diagnosis between fibro-cystic tumours of uterus and ovarian tumours, we find no mention of rate of growth. We have had personally a severe practical lesson as to its unreliability as a diagnostic foundation, still it is, in general, of some value, and deserves a place in every methodical consideration of the subject. More important still, we find nothing as to the different fluids furnished by each upon exploratory tapping, except so far as general appearance is concerned. There is not a word as to any microscopic fibres or cells, or as to the spontaneous coagulability of the fluid from fibro-cystic tumours. If it be objected that the reliability of these appearances remains yet unproven, we reply that it is precisely upon that account that we are looking for further information, and if the teacher has nothing new to give us, it is precisely here that we expect him to point out the direction in which further progress is to be made, assured that if this sign be proved reliable, we shall have made a most valuable discovery, and that science will not forget the discoverer. Still again, and more surprising still, we find no notice of Simon's plan of introduction of the hand into the rectum. The rectal touch is advised; only this and nothing more, in a question of differential diagnosis, where the procedure is probably of more value than in any other.

The extirpation of fibrous tumours by *gastrotomy and hysterotomy* meets with but little favour from the authors. A certain amount of experience has been gained from operations made under a diagnosis of ovarian tumours, and this is worth but little; since the difficulties have been better understood, and the operation has been designedly performed, a sufficient number of cases have not been reported to enable us to form a judgment. The results obtained in this country within a recent period do not find place here. The subject is considered at length, and the operation detailed for the benefit of those who, having undertaken ovariotomy, find they have a fibro-cystic tumour to deal with. These are the conclusions as to the operation itself—

> "1. Gastrotomy for the removal of fibrous or fibro-cystic tumours of the uterus should not be undertaken for the removal of tumours which are compatible with life. 2. The removal of large tumours with adhesions to the viscera or walls of the pelvis, necessitating the abduction of the uterus and the large ligaments, should be equally rejected, on account of the almost certainly fatal result by loss of blood and the shock so inseparable from this severe operation."

This, in English, is tantamount to saying that the operation should not be performed at all. We ought not, perhaps, to look for any more encouragement for an operation, one of the most severe of surgery, which still wants general recognition ; yet we certainly expected more from countrymen of Pean and Urdy, whose achievements and success in this operation have been equal to the best, and have everywhere won for their names honoured recognition. In the medical treatment of uterine fibroids we find nothing new. So far as the experience of the authors go, it is favourable to Hildebrandt's plan of hypodermic injections of ergot, but they have no brilliant results to report.

We close our examination of this work fearing that the patience of our readers has been long since exhausted. Our object has been to give them an opportunity of judging for themselves, both as to its positive and comparative merits. With this view we have made numerous extracts, and we have chosen as subjects some diseases falling daily under observation, and some of the rarest and most severe. The book is a good one, certainly so in a clinical point of view ; some parts of it are excellent, as, for instance, that relating to fibrous tumours and the complication of pregnancy and labour by them. It is marked throughout by great conservatism as to surgical measures of treatment of uterine diseases, a characteristic which will enhance its value in the eyes of some, depreciate it in the opinion of others.

We had marked several other extracts illustrative of this feature of the work, which time will not permit us to give ; notably one as to intra-uterine pessaries, which originated, we are told, at a time "*when no one doubted the possibility of curing a majority of the diseases of the uterus!*" The whole tone of the work is decidedly anti-surgical :—

> "In measure as our knowledge of uterine disease increases and enlarges, the rôle of surgery, although still remaining important, becomes less active and less venturesome."

While according this latest production of the French capital great praise, we cannot but express surprise to find that there are omissions of measures of diagnosis and treatment, some of which we have noted, which are counted within the resources of, and used by, practitioners in even second-rate towns in our own country.

It is gratifying to note the frequent reference to our authorities, and we have met with no European work to compare with this one in this respect. Drs. Thomas and Sims are both quoted frequently throughout the work, the former at length on the treatment of acute metritis, the latter on the enucleation of fibroids ; and we find the names of Atlee, Peaslee, Emmet, Burnham, Kimbal, Parvin, Reeves Jackson, Engelman, and others.

J. C. R.

ART. XXVI.—*The Germ Theory applied to the Explanation of Disease; the Specific Fevers.* By T. MACLAGAN, M.D. 8vo. pp. 278. London: MacMillan & Co., 1876.

THIS work has been, and will be, severely criticized, not only by those who differ from its author in opinion, but also by others, who condemn it because, without adding new facts to science, it is concerned merely with reasoning upon those already known, in order to obtain conclusions upon an important subject. Against this last ground of criticism we deem it not untimely to protest. The true thinker must always take higher rank in the heraldry of science than the mere observer. Facts before known made the basis of those grand generalizations by which Kepler, Newton, Lavoisier, Dalton, Harvey, and Jenner astonished and benefited the world. So far as those great men also added to science facts of their own discovery, this was another, but a lesser, occasion of glory to their names.

Dr. Maclagan's subject is certainly one worthy of very careful and laborious attention. Hitherto, as he remarks, it has been treated chiefly as a biological topic. More attention has been paid to the mode of origin than to the mode of action of the germs supposed to exist. Considering it rather as a pathological question, the purpose of the book before us is to investigate, not whether germs may originate *de novo*, but *whether the propagation of germs in the system is competent to produce the phenomena of disease*. The author deals, in the present volume, with the specific fevers; excluding from this category all forms of fever which are not regarded as due to the entrance into the system from without of a specific *materies morbi*. At the outset, we may observe that *malarial* fevers, remittent and intermittent, are, by almost all those who have reasoned upon them, considered to be due to the entrance of a morbid cause from without into the system. By implication at least, on two occasions, our author admits (pp. 78 and 87) the claim of intermittent fever to obtain inclusion in his list of "specific fevers." Yet malarial fevers are not directly treated of in the book. Two great groups of specific fevers are named: those characterized by a local lesion, and those having no such characteristic. The former he refers to as the eruptive, and the latter as the non-eruptive specific fevers. The types of the first group are variola, varicella, measles, scarlatina, typhus, typhoid, and cerebro-spinal fever. The type of the non-eruptive group is relapsing fever.

Zymotic, the old word (at least since Liebig's time) for all these disorders, is a term ignored by our author. "Certain it is," he says, "that our knowledge of the mode of production of fermentative and putrefactive changes is not sufficiently precise to be used as a stand-point from which diseased processes may be studied." Such a rejection of the idea of morbid *zymosis* has now become quite general. We believe, however, that the reaction from a tendency, once existing, to *overstrain* the analogy, dwelt upon so earnestly by the great German chemist, has led many to underestimate the actual value of that analogy. It was never a *resemblance* of physical *appearances*, but *a parallelism* of causative *relations* that Liebig urged; and this parallelism, between the action of a ferment upon a vegetable juice, and that of a virus upon the fluids of a human body, does exist.

Taking it as granted that "the distinguishing characteristic of those maladies which are believed to result from the action of germs is contagion," Dr. Maclagan defines a *contagium* as "a morbific agent propagated in, and given off from the bodies of the sick, and capable of producing in another body a disease similar to that during whose course it was formed." Confession is made of the imperfection of our knowledge of the nature of contagion. The two most promising modes of investigation of it are—the examination of fluids known to manifest it, and a consideration of the facts of infection.

In the case of two diseases, relapsing fever and splenic fever, foreign organisms are asserted to have been detected in the blood. From the observations of Beale, Chauveau, and Burdon Sanderson, it is concluded with great confidence, that the contagium of cow-pox and sheep-pox is *particulate;* not soluble or diffusible. Our author at once extends this conclusion, by inferential analogy, to *all contagia.* It certainly explains, with great convenience, several well-known facts; especially the escape of some persons, and the suffering of others, exposed to infection at the same time and place. The number of particles, like the number of bullets upon a battle-field, will determine the respective chances of "being hit."

Facts of infection are twofold: those presented by the contagion within, and those which it presents without the body. Within the body, the most noteworthy is its enormous capacity of reproduction. Dr. Maclagan asserts that no physical or chemical process, except organic reproduction, affords a semblance to this. But *combustion* does resemble it, so far as it is (in a progressive conflagration for example) the extension of the same kind of change from one mass of substance to another, with the production of the same material result or resultants. All through the book before us, we are reminded of the very able discourse of the late Dr. Snow, of London, upon "continuous molecular change;" not because of parity of reasoning, but because the idea or theory of Dr. Snow, while venturing less than that of Dr. Maclagan, will account for nearly all of his facts, while avoiding some of his most formidable difficulties.

Our author examines with care and candor the views of several leading writers, upon the analogy between the action of contagia and that by which, under certain conditions, crystals are formed, or definite chemical changes are effected; such, for example, as the conversion of oxamide into oxalic acid and ammonia, when oxamide is brought into contact with a solution of oxalic acid. We have not space to recall the considerations which satisfy him that a perfect analogy to contagion is not presented in either of these instances. Nor can we follow in detail his able analysis of the facts and opinions of numerous observers concerning the coincidence of bacteria, microzymes, or micrococci, with infectious diseases of various types. Our readers are, no doubt, already familiar with much written upon this subject by Beale, Sanderson, Hallier, Cohn, Bastian, and others. More nearly than elsewhere in this book, our author approaches the biological discussion, when, in discoursing upon "the nature of contagion" (Chap. II.) he glances at Dr. Bastian's doctrine of "abiogenesis," and the counter evidence, of Tyndall and others, again and again disproving the asserted occurrence of spontaneous generation. As we have stated, it was beyond the purpose of Dr. Maclagan's book to notice the later phases of this biological controversy. Our readers' attention may, however, be called, *en passant*, to the very striking experiments made recently by Tyndall (reported in *Nature* a few months since): whereby he established clearly the effect of *interrupted* and *repeated* exposure of liquids containing bacteria to heat, in rendering totally barren of life materials which had remained prolific after a *longer* exposure to a *higher* temperature once only. The explanation here, as Tyndall shows, is, that the *germs* of minute organisms may be not only ultra-microscopic in minuteness, but *more resistant* than the organisms themselves, to the destructive action of heat. By *repeated* short exposures to a high temperature, the successive *broods* of developing germs are killed, so that at last none remain, and the liquid becomes barren. Dr. Maclagan accords full weight to the cogent reasons for not making synonymous the terms "bacteria" and "contagia." These are, especially, that 1. bacteria may be introduced into the circulation of the lower animals without serious effects; 2, bacteria are found in abundance on the mucous and other surfaces of the body in health, and in many fluids which are not morbific; 3, many fluids, known to be virulent, are most potent in the fresh state, and lose their infecting power at a time when bacteria are rapidly developing in them. The third of these well-proven facts, perhaps the most important in its bearing upon our present subject, is ingeniously disposed of by Dr. Maclagan. Accepting fully the judgment that contagia may be non-identical with all, and must be removed in nature at least from some, bacteria, he suggests that the increase in the number of the latter, in fluids which at the same time are losing their infective power, may be due to the contagia undergoing *bacterial degeneration*.

Most characteristic of Dr. Maclagan's book is the hypothesis which he elaborates, in seventeen chapters, upon the *mode of action* of contagion *in the body*. We will endeavour in a few words to indicate the substance of, this hypothesis. Taking, first, the eruptive fevers for study, it is observed that, while each of those fevers has its own definite phenomena, certain features are common to the whole group. This last fact must be referred to similarity of causation. All features common to the whole group Dr. Maclagan accounts for by the theory that the contagious particles are minute organisms, requiring for their nutrition and growth *nitrogen and water*; these being obtained at the expense of the *constructive store albumen* of the body. From this robbery of the organs, while retrograde metamorphosis goes on as fast, or faster than usual, results excessive tissue waste, with excess of urea in the blood. But as *water* also is consumed largely by the growing organisms, its deficiency explains the scanty *excretion* of urea by the kidneys. *Calor præter naturam*, the leading phenomenon of fever, is ascribed to the increased tissue-consumption. The rapidity of circulation in fever Dr. Maclagan refers to the increased demand for material in the tissues, at a time when not only they but also the contagium particles, are, so far as can be, to be "fed" and maintained. This explanation seems to us very doubtful.

We may remark that, on this view, it is supposed that tissue-combustion is, during fever, going on so actively as to generate an unusual amount of heat, while at the same time the material normally required to renew the tissues is being taken up by millions of growing organisms. But it is not apparent that lessened formation of tissue will, *per se*, occasion hastened disintegration of tissues already formed. Soon, also, less tissue being constructed, there must be less of it to furnish fuel for waste combustion. We need not dwell here on the generally recognized probability that the chief normal source of heat in the body is material (from food) in the blood, not yet built up into the tissues. No doubt excessive consumption of tissues does occur in fever; and this is attended by increase of temperature. Since, however, the *growth* of the hypothetical organisms cannot be supposed to be a source of heat, we are inclined to the opinion that the essential causative condition here is *lowered vital energy* of the system, allowing oxidation to occur instead of construction of tissues.

Our author does not assert that the *growth* of contagia in the body produces heat, but he does venture the bold proposition that their *fecundation* does. Against the probability of this much might be said; but we may be satisfied with quoting his own declaration (p. 205) that "organisms such as those we are now dealing with multiply by division." Surely multiplication by division of the lowest organisms cannot generate much, if any, heat. Moreover, *what becomes* of these wonderful fecundating organisms? The life-history assigned to them by our author makes us somewhat impatient with their *ultra-microscopic* character. Also it is especially hard to conceive the regularity and consentaneousness of their myriad introduction and reproduction, as in relapsing fever; and still more, in the quotidian paroxysms of intermittent fever; to which last our author, as we have said, scarcely alludes.

Further, Dr. Maclagan holds that the contagia live, grow, and multiply in the body as *parasites.* Each kind requires a *nidus* for its fecundation, and this nidus is some organ, which yields a *second factor*, whose existence is, to the specific morbific action of the contagium, a *sine qua non.* For diphtheria, the second factor exists in the throat; for typhoid fever, in the intestinal glands; for smallpox, in the skin; for relapsing fever, in the blood at large; etc. etc. The second factor is exhaustible; hence the self-limitation of fevers. That which is essential to many diseases, as the exanthemata, when once exhausted, is never or seldom renewed; hence the immunity of the individual from a second attack. The local lesions peculiar to the different specific fevers are referred to the reaction, in the organs affected, between the second factor and the "fecundating" contagia. All the leading phenomena of fevers are carefully analyzed by our author, and some explanation is afforded for every one, in accordance with the hypothesis above briefly set forth.

To follow Dr. Maclagan throughout this analysis would require a lengthened review. Unquestionably he manifests much ability, research, and acquaintance with the natural history of disease, as well as with current ideas in pathology. But we cannot accept his arguments as demonstrative or satisfactory. Too much is conjectural; too many gaps are left to be filled up. Yet we believe that the thoughtful student of general pathology will be well rewarded for the attentive perusal of the whole volume. It contains a presentation of very many facts of great interest, and reasonings of extreme ingenuity, most lucidly stated; to the merits of which we have in this notice done but scanty justice. H. H.

ANALYTICAL AND BIBLIOGRAPHICAL NOTICES.

ART. XXVII.—*Guy's Hospital Reports.* Edited by H. G. HOWSE, M.D., and FREDERICK TAYLOR, M.D. 3d series. Vol. XXII., 8vo. pp. xx., 527. London: J. & A. Churchill, 1877.

THIS is the oldest and best of the English hospital reports. We never take up a volume of the series without pleasant anticipations, and we never lay one down without having those anticipations realized. We are glad to believe, too, that its "list of subscribers" does not by any means represent the number of its readers. The present list covers some 550 names, representing England and her colonies, one each in Costa Rica, China, and France, and six in the United States. It surprises us, in view of the moderate cost (7*s.*) and great value of the series, that so few foreigners are found in the list. Of those from the United States, one resides in Rockland, Maine, three in New Brunswick, New Jersey, one in Chicago, and one in Utica. This does not, however, represent the full number, as within our own limited knowledge we know of several subscribers through book importers whose names do not appear on the list.

In accordance with our habit, we will first notice the surgical papers and then the medical.

The volume opens with a paper by Mr. EDWARD COCK, *On Primary Syphilitic Sores*, with a view of explaining their condition and appearance, as altered and modified in accordance with the difference of the textures on which they are situated. It is based on an experience of "some thousand cases of syphilis," during a period of nearly fifty years. Mr. Cock distinguishes between "simple" and "syphilitic" sores. It is of the last only that he speaks. He believes "that the extent of the induration connected with the syphilitic sore, and the amount of its density is [are] governed much more by its situation and the textures involved, than by the virulence of the inoculated poison," and that the amount and extent of induration do not indicate the extent and severity of the secondary symptoms. The induration depends "upon the amount of loose subcutaneous cellular membrane existing in different regions. . . . . Its abundance favours, while its deficiency resists the induration." In accordance with this view, chancres on the prepuce are most indurated; those on the surface of the glans and on the orifice of the urethra the least; those on the body of the penis and the frenum holding an intermediate place. He lays no stress on the size of the sore as compared with its seat. "As a broad rule, the further the sore is removed from the solid structures of the organ, *i. e.*, the glans and body, the less severe will be the consequent constitutional symptoms. Marginal sores, although decidedly specific in their character, are seldom or never productive of extensive or severe secondaries."

The next paper is by Mr. C. HIGGINS on *The Causes of Preventable Blindness.* In the last volume he considered granular ophthalmia, purulent ophthalmia, and glaucoma; in the present he considers sympathetic ophthalmia, and lays down as a rule, "that a person with a blind eye, which has been lost by choroido-iritis [irido-choroiditis is certainly a more common, and seems to us a much more euphonious term], especially if that choroido-iritis have resulted from an injury, is not safe from an attack of similar inflammation in the fellow eye, so long as the lost eye remains in its orbit." Hence, as sympathetic ophthalmia when once set up inevitably results in total blindness, the premonitory symptoms which usher it in must be carefully watched for, and, as a rule, the first eye excised as soon as they arise in order to save the other. He points out the fact that the operation of "sclerotomy" is "an extremely fertile source of sympathetic ophthalmia."

Mr. GOLDING BIRD next relates *Two Cases of Subcutaneous Osteotomy of the Neck of the Femur.* Scarcely any operation in surgery that has been lately proposed, has met with such general favour and such signal success as that which Mr. Adams has introduced. Being so new we will give a brief *résumé* of the cases, especially as they touch upon two points, the seat of the section and the instrument with which it shall be performed, as to which modifications of the original operation have been proposed. The first case, æt. 20 years, had hip disease at eight years of age. The right thigh was bent at nearly a right angle, the great trochanter and neck were represented by a mass of bone. The femur was displaced on the dorsum ilii, knee movable, leg shortened two inches. Mr. Adams's operation was performed, requiring forty minutes for section of the thickened neck by the saw, the thigh was extended, and a long outside splint was applied, replaced the next day by extension by weights. Ten days afterward a small fragment of bone came away. In a little over two months he was walking about on crutches. Fourteen months later the limb was anchylosed in a straight line. The shortening was two inches. He could walk without assistance, but carried a walking stick as a precaution. Had division of the femur below the great trochanter with the chisel been recommended at that time, he says he probably should have performed it in preference to Mr. Adams's operation; a decision which the five operations reported by Mr. Maunder (*Trans. Clinical Soc.*, vol. ix., 1876, p. 156, and this Journal, Oct. 1876, p. 582) would certainly justify.

The second case, æt. 23 years, was the result of an accident ten years previously. The right femur was dislocated and flexed, but its neck was normal. Instead of using the saw Mr. Bird employed a carver's chisel of hard steel four-tenths of an inch broad, and ground equally on both sides to prevent locking. He rejects as unnecessary Volkmann's method of three chisels of different sizes. The neck of the femur was nearly divided by the chisel and the remainder fractured by extension, the operation lasting eleven minutes. Extension was then applied. The wound healed at once, and in two months he was walking about on crutches. The shortening was one inch. In discussing the question of the instrument to be used, he prefers the chisel to the saw, on the grounds that it can be used in situations where the saw cannot, as in subcutaneous bones, and in the neighbourhood of large vessels; that it does not produce any detritus; that it does not require the to-and-fro movement of the saw which favours the admission of air, and diminishes, or destroys the subcutaneous character of the operation; yet he recognizes the fact "that the surgeon finds that instrument best, in the use of which he is most skilled."

Mr. DAVIES COLLEY next relates *Two Cases of Punctured Fracture of the Skull, successfully treated by Trephining.* Both were children. The brain was wounded in each with depression of a piece of the inner table, in one case from puncture by falling on a nail, and the other on a fender. The trephining was done antiseptically, and both made good recoveries.

Mr. THOMAS BRYANT continues his report on *Operative Surgery*, and gives six cases of *tumours of bone.* The first case was a myeloid tumour of the head of the tibia, in which the thigh was amputated, and the disease had not returned fifteen years subsequently. The second was a periosteal sarcoma growing from the condyles of the femur, in which amputation of the thigh was done, and the disease had not returned after three years. The third was an osteo-chondroma of the femur, in which the thigh was amputated, and death followed two weeks later from pyæmia. Two points are worthy of notice in connection with this case. On the ninth day after the operation a scarlatinoid rash appeared, ushered in by severe constitutional symptoms; an affection not altogether uncommon in surgical cases, and which he suspects to be connected with the fatal septicæmia. The stump was dressed with carbolized oil, which resulted in melanuria. This was one of the first cases in which this result was observed to follow the use of carbolic acid, and was the subject of a paper by Dr. Stevenson in the Reports for 1867. Mr. Bryant points out the danger which sometimes follows the use of carbolic oil even in small wounds. The two patients to whom he refers were collapsed, comatose, and apparently dying. The melanuria indicated the cause of the condition, and changing the dressing averted, doubtless, the fatal result. At page 506 Mr. Howse calls attention to the fact that Mr. Bryant used a very strong solution, ten and twenty per cent., instead of the customary one of five per cent. In an experience of seven years with the antiseptic method in "many thousands" of cases, he has not had one of poisoning by carbolic acid. In a few of them melanuria has appeared, but without constitutional symptoms, and has speedily subsided without change of treatment. Nor does he regard it of importance unless associated with albuminuria, in which case the acid should be abandoned. The fourth case is one of fibrous carcinomatous tumour of the left tibia which had not infiltrated the bone, but had caused absorption of its whole thickness. We are glad to see, that in both this case and the first he confesses that the better practice would have been an amputation at the knee-joint, instead of in the thigh. The fifth case is unique in his experience. It was a cyst in the shaft of the tibia, coming on for nine years without apparent local or constitutional cause. The right tibia was dilated to twice the diameter of the other. Trephining opened a cavity as large as a walnut, lined with membrane and filled only with serum. He recovered quickly and four years later the enlarged bone had contracted to its normal size.

The sixth case is a remarkable one of universal osteoporosis. Should the skeleton ever be procured, it would be interesting to compare it with the only similar case that we are acquainted with (the skeleton of which is now in the museum of the College of Physicians of Philadelphia), presented to the Pathological Society of Philadelphia in 1870, the report on which is to be found as an appendix to the third volume of its Proceedings.

The next paper is by Mr. H. G. HOWSE on *The Cure of Varices by Excision.* He reports five cases of simple varicose veins, and five of varicocele, in which, from half an inch to two inches of the veins were excised by a simple incision over them; the whole operation being done antiseptically. He urges strongly, and with some apparent reason, the advantages of this method over all others.

Mr. HOWSE also presents, under the head of *Short Communications*, a few remarks *On the Translucency of Congenital Hernia in Children*, which might lead us to confound it with hydrocele. He also gives drawings and explanations of two *splints*, one for *excision of the knee*, and one for *excision of the ankle.* They appear to be very well suited for the purpose, especially as both of them are suspended, and allow of rotation of the limb without disturbance of the bones, a point of particular value in children. We do not admire the bandaging as represented in the plates. W. W. K.

We shall now notice the medical papers in the volume.

First among these in order, and we think also in scientific importance, is an article by Dr. SAMUEL WILKS *On Cerebritis, Hysteria, and Bulbar Paralysis as illustrative of Arrest of Function of the Cerebro-spinal Centres.* In it the author calls attention to the fact, which we suspect is often forgotten, that the symptoms of cerebritis are obscure as compared with those of specialized lesions of the brain. Thus, when the hemispheres are involved, there is, he says, no definite paralysis, but only a slow failure of strength, no delirium or mental excitement, but only a gradual diminution of intellectual power. So true is this that in some of the cases of cerebritis with which he illustrates his paper, and in which most extensive disease was present, a doubt had been expressed by competent physicians as to the existence of any organic change at all, or whether the loss of vigour could not be accounted for by a mere temporary abeyance of function. The main features of inflammation of the brain, it is therefore to be remembered, are those of impairment of the function, indicated, in a word, by torpor. And in many cases this lethargy may be the only symptom.

In the seventeenth volume of this series (see number of this Journal for July, 1872) Dr. Wilks lays down some very judicious rules for the treatment of hysteria, and in the present volume he therefore discusses more particularly the pathology of the disease. In common with most other writers he holds that hysteria is really evidence in the woman it affects of a weak will. It is clear, he says, that the possessor of a very powerful will or authoritative disposition could not be hysterical except under the influence of a tremendous shock to the system, whilst, on the other hand, hysteria would be constantly found amongst the nervous and feeble-minded. The occurrence of anæsthesia or paralysis in an hysterical woman he consequently regards as indicative of the cessation of the activity of the higher functions of the cerebral hemispheres. If, he says, we also believe that during the absence of this governing power of the brain, the spinal system is allowed to run riot, we can understand the meaning of the convulsions, strange movements, and emotional excesses so frequently witnessed in this malady.

In illustrating his remarks on this subject the author refers to cases of infantile paralysis, bulbar paralysis, and acute ascending paralysis in which recovery took place, and to others which ended fatally. In some of the latter no organic change was found in the nerve centres. And in some of the former the symptoms came on so rapidly and disappeared so suddenly that he finds it impossible to refer them to any known structural change.

The paper also contains, as its title indicates, more remarks on the subject of bulbar paralysis, together with the histories of some interesting cases of this disease.

For the sake of convenience, we shall notice in this connection a second paper by Dr. Wilks, which is entitled *Historical Notes on Bright's Disease, Addison's Disease, and Hodgkin's Disease*, and in which he considers the claims of these distinguished physicians to be regarded as the discoverers of the diseases to which their names have been given. It is scarcely necessary to say that he proves conclusively that most of the leading facts described by Bright were already known, and that his merit consisted principally in showing that there was a common form of disease amongst us which was to be recognized by certain definite methods, and, more than this, that there were varieties of it. It may not be known to some of our readers that Bright described a case of supra-renal disease with discoloration of the skin, and that the specimen which is now in the museum of Guy's Hospital shows the typical form of the morbid alteration which takes place in these organs; but there is no reason for believing that he had any suspicion of the connection between the discoloration of the skin and the changes in the supra-renal capsules. Dr. Bright was, moreover, the first who described acute yellow atrophy of the liver, pigmentation of the brain in melanæmia, condensation of the lung in hooping-cough, and unilateral convulsions without loss of consciousness in local cerebral diseases. In regard to Addison's discovery, the author says its novelty was complete; for, although cases of melasma of a special form had been met with before, no one had hinted at their association with disease of the supra-renal bodies. It is worthy of remark, however, that nine years before the appearance of Addison's treatise M. Aran came even nearer than Dr. Bright to making this discovery. At this time he published a case of supposed pancreatic disease, but the symptoms which he describes minutely show clearly that it was one of Addison's disease. Owing to a careless dissection, he failed to discover the seat of the abscess to which he rightly attributed the symptoms. The following quotation from Dr. Hodgkin's original article will show that he himself was aware that the disease described by him had not entirely escaped notice: "The morbid alterations of structure which I am about to describe," he says, "are possibly familiar to many practical morbid anatomists, since they can scarcely have failed to have fallen under their observation in the course of cadaveric inspection."

Dr. GEORGE H. SAVAGE contributes a paper on the *Relations of Mental Disease to Inheritance*, in which he says that the more carefully he studies nervous disorders the more he is struck by the quantity of transmitted disease, and by the rarity of well-investigated cases without a neurotic history. His experience has also led him to the conclusion that the neuroses are related to one another, but as yet we have not discovered how. 375, or nearly 38 per cent., of the patients admitted into Bethlem Asylum from the 1st of January, 1872, to November 1st, 1876, had one or more insane blood relations.

We shall briefly allude to a few other of the author's conclusions. The insanity of the father passes pretty equally to sons and daughters, but the mother's insanity is specially dangerous to daughters. The female sex has a specially great tendency to receive the taint from parents. More patients have insane mothers than insane fathers. A tendency to phthisis may coexist with one to insanity. States of depression are more apt to be transmitted than those of excitement. Drunkenness in the parent may be followed by insanity or epilepsy in the children, or, on the other hand, an insane parent may beget children with a craving for drink. A multiple inheritance does not necessitate a larger dose of insanity, or, at least, a less chance of cure; in fact, among females, a larger percentage of cures is obtained among those with strong taint than among those with slight.

We shall call attention only to a few of the leading points in Dr. P. H. PYE-SMITH'S article on *Xanthelasma*, as Mr. Hutchinson and Dr. Church's papers on this very curious disease have been recently noticed in this Journal. (See Nos. for July, 1871, and October, 1875.)

In regard to the histology of this affection, Dr. Pye-Smith says that the result of observation shows that it consists anatomically in a chronic hyperplasia of the deeper layer of the cutis, in which the papillæ and epidermis on the one hand, and the subcutaneous connective tissue on the other, are only secondarily involved. The process may run in two directions. Either fatty degeneration occurs, or the course which the disease takes approaches the process of formation of a true tumour or new growth. The disease is more frequent in women than in men, in the proportion of three to two. It is exceedingly rare under thirty; most of the cases, indeed, having occurred in patients over forty. The most remarkable of its concomitants is jaundice. This, however, is dependent upon very different causes. Thus, in eight cases in which there was a post-mortem examination, the following conditions were found. In two, cirrhosis of the liver with hypertrophy; in one, simple stricture, and in one cancerous stricture of the common duct; in one, obstruction by hydatids; in one, occlusion by gall-stones; and in the remaining case, chronic atrophy of the liver. In two other cases gall-stones were passed during life, and in three others the symptoms were pretty certainly referable to ordinary cirrhosis. The author, therefore, concludes that all that seems necessary for the production of xanthelasma is that the jaundice should last long enough. He does not think that there is any connection between this affection and sick headaches, although he admits that the two are frequently found associated in the same individual, a fact first brought to the notice of the profession by Mr. Hutchinson.

The paper contains the reports of several cases not hitherto published, and a table in which thirty-eight cases are tabulated.

A second paper contributed by Dr. PYE-SMITH is entitled *Remarks on the Classification of Disease, and particularly of Diseases of the Skin*, in which he attempts to show that a very fair classification of diseases may be made according to their local distribution, and that this is especially true of skin diseases. It will be found to be a very thoughtful paper, but as it does not very readily admit of analysis, we must dismiss it with this brief notice.

Dr. JAMES F. GOODHART contributes a valuable paper on *Empyema and its Treatment*, which is founded upon seventy-seven cases of the disease, about half of which occurred at the Evelina Hospital for Children, and the other half at Guy's. From an examination of the tables in which these cases are arranged, it is manifest that the left side of the chest is more frequently (in 50 cases out of the 77) affected in this disease than the right; but that when it attacks the right side, because it is more likely to be associated with disease of the lung, it is more apt to terminate fatally. They also show how frequent is empyema in early life, as compared with its occurrence in people past middle life, and that children are very much more apt to recover than adults. In infants, however, the results are unfavourable. The percentage of deaths in males was 41 ; in females, 48.

The different plans of treatment are compared with one another. In regard to the expectant plan, the author says that it has long been known that an empyema may often be safely let alone, and that he has notes of several cases where he believes pus to have been present in the chest, and where the physical signs have gradually subsided under attention to the general health of the patient; but he is inclined to think that these were not cases of true empyema, but rather of local abscesses in some parts of the pleura, which sometimes, indeed, attain a large size by the stretching of their walls, but which still remain local abscesses, and are not diffused inflammations localizing themselves. It is, therefore, a plan of treatment which he would not recommend, because the risk of secondary inflammatory changes in the lungs is very much increased by it.

Of simple aspiration the author also expresses rather an unfavourable opinion, saying that he has seen it used many times, but never with any other success than that of immediate and temporary relief. He believes that the operation, moreover, is not so harmless as its advocates would have us imagine. In some cases that have come under his observation "the exhausted bottle has exercised so much suction upon the lung that large quantities of air have been sucked from the lung into the bottle with the pus," and, "in one of the cases of serous effusion becoming purulent, it seems not unlikely that this suction of air may have determined the purulent change in the fluids."

The cases he has tabulated do not include any of recovery, and he says he should not perform the operation with any hope of effecting a permanent cure by it. But, he adds, paracentesis may be a useful operation. "It, as it were, coaxes the pus to point spontaneously." Cases which do thus point without interference seem to run less risk of death than others where surgical interference is necessary, and a reference to the tables will show this. Eleven cases are recorded of spontaneous opening and no deaths. This result will seem less brilliant when we add that in ten of the cases the patients got well with permanent fistulæ, or some decided evidence of chronic lung disease. It is not easy to say why cases which point of their own accord are less fatal than others. The author believes that their being so is solely dependent upon the mode of exit of the pus, which, in these cases, finds its way out by a more sinuous channel, and yet generally with considerable freedom. In other words, the external air is thoroughly excluded from the pleural cavity.

The results obtained from subaqueous drainage are also unfavourable, and the author is inclined to think this is due to the fact that in a large number of cases this plan of treatment does not accomplish what it professes to do. In many cases the chest is not thoroughly emptied of pus, and in others it refills. This may be owing to the pus being too thick and curdy to pass readily through the tube, or to the fact that adhesions have formed and made the cavity multilocular, a result which the presence of the tube in the chest would be very apt to promote. Moreover, he believes in some cases the suction action of the tube, which is in effect a siphon, must have a great tendency to produce an aperture in the lung opposite the orifice of the tube, and so lead to pneumothorax, and to the evacuation of part of the contents of the pleura by the bronchial tubes. This plan of treatment has, however, the advantage of permitting the chest to be readily washed out, but the author takes occasion to state his opinion that all such interference with the cavity had better be avoided, except where it is really necessary from decomposition within.

Of all the various plans of treatment in empyema, Dr. Goodhart decidedly prefers that by incision; but why he does so is not very clear, since the result of the cases in which it was employed is not much more favourable than that obtained by the siphon drainage. As the object of this plan is the complete drainage of the chest, the opening should be made low down. In the lateral region of the thorax, he says, an opening may be made as low as the seventh space; midway between this part and the angle of the rib, in the eighth, and at the angle in the ninth. Care should be, of course, taken that the opening is large enough to insure the free and continuous evacuation of the pus. Where this does not take place it may be necessary to insert into the opening a short drainage tube. In other cases, and especially in children, it may be necessary to saw across one of the ribs, or even to take a piece of the bone away.

The author calls attention to the fact that a good though feeble vesicular murmur is sometimes heard over the affected side, and that its existence is no contra-indication to an operation if the other physical signs leave no doubt of the presence of fluid, or even if the distress is great without evidence of the fluid being in large excess.

The cases with which Dr. S. O. HABERSHON'S paper on the *Diagnosis of Diseases of the Cæcum* is interspersed are valuable, because they illustrate conditions which are not always correctly interpreted during life. In one of the cases tubercular ulceration of the small intestine and of the cæcum was followed by perforation of the latter, and by the formation of a post-peritoneal abscess, which, extending to the under surface of the liver, gave rise to the belief that an hepatic abscess was present. In another case suppuration of the ovary was followed by pelvic cellulitis, simulating cæcal disease. Among the conditions which may be mistaken for disease of the cæcum are the following: disease in the iliac fossa and of the sacro-iliac synchrondrosis; disease of the kidney, calculus, and pyelitis; disease of the glands, iliac, and lumbar; abscess in the parietes; aneurism.

Dr. C. HILTON FAGGE communicates, with some observations, for Mr. W. H. LAMB, *A Collection of Cases of Diphtheria and Croup, abstracted from the Clinical and Pathological Records of the Hospital.* This is a very long paper, and contains abstracts of 104 cases of the two diseases. The following are the conclusions which the authors think justified by the analysis of these cases:—

> "We find," he says, "that the attempt to separate from diphtheria a membranous croup, in which the fauces remain entirely free from false membranes, is beset with difficulties. The cases (which must then be called diphtheria) in which the air-passages are attacked, the palate and tonsils being but slightly affected, occur almost exclusively in children; and they are seldom, if ever, infectious, whereas pharyngeal diphtheria is highly infectious. But when one has admitted that the different forms of diphtheria present different degrees of infectiousness, and that each of them occurs with special frequency at a particular period of life, one is debarred from insisting on the sporadic character of membranous laryngitis, and the fact that it never arises in the wards of a general hospital, as proof that it is distinct."

Dr. PAUL HENRY STOKOE, in his article *On the Use and Administration of Sedatives*, lays down certain rules which he believes will be found to be useful guides in prescribing digitalis, opium, belladonna, and aconite in diseases of the heart. In the latter part of his paper he speaks of the use of these remedies and of chloral and bromide of potassium in various nervous maladies.

A paper entitled *The Nervous System in Diabetes* is the joint production of Drs. FREDERICK TAYLOR and JAMES F. GOODHART, and is an attempt to show that the appearances described by Dr. Dickinson (see number of this Journal for April, 1870) so far from being peculiar to diabetes, are found in a great many other conditions. Indeed it is most probable that they are normal. The paper which seems to have been written in a scientific spirit, is founded upon the post-mortem appearances in nine cases of diabetes.

The pathological lesions in the cases of *Acute Poisoning by Phosphorus*, reported by Dr. THOMAS STEVENSON, do not differ from those already put on record by numerous other observers, and consisted principally in fatty degeneration of the liver, kidneys, and heart. The symptoms were, however, rather more insidious. For the gastric irritation which followed the ingestion of the poison passed away, leaving the patients apparently in their usual health, there being not even any peculiarity of the health to attract attention. In a day or two, however, thirst, dryness of the throat, and slight jaundice appeared, and were soon followed by prostration, nervous symptoms, albuminuria, and finally by death.

From Dr. J. C. STEELE'S *Statistical Analysis of the Patients treated in Guy's Hospital during the year* 1876, we learn that the number of patients who were received in the year 1876 amounted altogether to 81,781, of whom 5722 were under treatment in the wards. J. H. H.

ART. XXVIII.—*St. George's Hospital Reports.* Edited by W. HOWSHIP DICKINSON, M.D., F.R.C.P., and TIMOTHY HOLMES, F.R.C.S. Vol. VIII., 1874–6. pp. xvi. 580. London: J. & A. Churchill, 1877.

SINCE the publication of the last volume, two well-known St. George's men have passed away—Dr. Robert Lee and Dr. Francis Sibson. In the Preface, after some preliminary remarks, the editors allude in fitting terms to this irreparable loss, and briefly sketch in outline some of their more prominent characteristics.

In accordance with our custom, we will first notice the surgical papers and then the medical.

Two papers on analogous subjects open the volume, the first on *The Physical Development and the Proportions of the Human Body*, by CHARLES ROBERTS, F.R.C.S.; the second, *Notes on the Development and Growth of Boys between 13 and 20 years of age* (not 13 and 14 years, as stated in the table of contents), by G. CARRICK STEEL, F.R.C.S. The subjects here discussed are seldom brought to the notice of the community; and yet they are of great importance to the physiologist and the physician in solving the problems of growth and vigorous health, to the military surgeon in examining recruits, to the artist in fixing his proportions, to the statesman and the student of social science, in relation to the growth and employments of the population, to the insurance officer in the, as yet, nascent department of assurances on minors' lives, and we might add, to the sporting man in his judgment of athletes. The data which have been assumed by artists (and they have given more study to this subject than any others) have been uncertain, and, so far as is known, have not been derived from the rigid or scientific investigation of any large series of facts. Even in the fundamental relation of the head to the entire height, they have varied widely, Raphael sometimes making the head one-sixth of the entire height, while most artists make the height seven or eight heads, and some even nine. Moreover, so far as we know, their canons of proportions have been determined almost exclusively for the adult man and woman. It is an extremely curious fact, that among all the statues and portrait busts of the antique, there are few, if any, of children. The famous "Young Augustus" is an adolescent and not a child. Even in an age of wealth and luxury, when portrait busts of adults were frequent, children were never so represented. Of the two papers Mr. Roberts' is the most valuable, and is the most extended in its subjects and its length. He rejects the "module" of the body which Carus chose, "the vertebral column, which is, so to speak, the real organic ell divided into twenty-four inches," and rightly, for there can be neither philosophical nor physiological value in an arbitrary selection of the twenty-four free vertebræ, or rather, the distance between their spinous processes, to the exclusion of the fixed vertebræ. He endeavours, with Quetelet, by numerous measurements and the application of the binomial law of Newton to obtain the proportions not of the "average" but of the "mean" or typical man, a distinction of terms which has been observed also by Gould and Baxter in this country. He considers the total height, the length of the head, the neck, the trunk, the upper extremities and the lower, the girth of the chest, and the weight, and in many of his tables adds to their value by differentiating the "labouring" and "non-labouring" classes.

It is impossible to follow out all his valuable deductions and observations. We simply call attention to two or three. The "mean adult man" has a height of 67.5 inches, a chest girth of 35.5 inches, and a weight of 137 pounds.

> "It is probably to the greater or less development about the time of the accession of puberty that the final difference in height of individuals is in a great measure to be attributed; hence the influences which promote or retard it at this period are most deserving of study. In boys puberty occurs later and is less regular and decided than in girls. The transition from boyhood to manhood extends over a period of three or four years and is accompanied by increased physical development of the body; but girls develop into women in a few months, and with the complete establishment of puberty growth in height is much diminished and often ceases altogether. There appears to be a wider range in the heights of adult women than adult men in this country, and this difference is due in a great measure to the suddenness of the accession of puberty and the check it gives to the growth. I have found that puberty has been attained later in tall women than in short ones, and if we would improve the physique of our women, and through them the general population, we must study how we can best postpone this important period."

The upper extremity quadruples its length from birth to maturity, but while the arm only increases 3.78 times, the forearm increases 4.26 times. The lower extremity increases 5 times in length in the same period, but while the leg from the patella to the malleolus grows but 4½ times, the thigh, measured from the trochanter to the patella, grows 5 times, and from the fork to the patella 7.31 times in length. The bearing of these data on the importance of diseases of the joints and on operative interference, especially at the knee and the wrist before maturity, are so obvious that the facts need only to be stated.

Mr. Steel gives the results of the examination of 3695 boys from 13 to 20 years of age as to height, weight, strength, and chest girth, and he again calls our attention to the importance of favourable hygienic surroundings at puberty (15 to 17 years), and that freedom from overstrain, wholesome food, and appropriate work are necessary for a proper physical development.

Mr. WARRINGTON HAWARD contributes a paper *On Ozæna*, in which, while there is nothing striking or original, yet he has done a real service to the sufferers from this distressing malady, by calling attention to the simple and often efficacious operation of Rouge, of Lausanne, by which free access may be had to the nasal cavity for the removal of polypi or other tumours, or of dead bone, which is the persistent cause in the majority of cases of long standing ozæna. The soft parts are separated from the bones by an incision through the mucous membrane, and the lip and nose are lifted together towards the forehead. The nostrils can then be freely examined, any necessary operation can be done, and when the parts are readjusted no scar is visible. He adds an often neglected bit of practical advice, "to wash out the nose by means of the nasal douche before examining the cavities." It is well also to bear in mind the fact, that a fatal result may follow a too free interference with the ethnoid bone in the nose, death having occurred from meningitis in one of Rouge's eight cases. Four instructive cases are related.

Mr. EDGCOMBE VENNING follows in some *Remarks on the Discussion on Syphilis at the Pathological Society in February*, 1876. Following out the suggestion of a writer in the *Lancet* of November 27, 1875, in order to get the profession out of the fog, which is usually as dense at the end of a "field day" at any one of the societies as it was at the beginning, "that the debate should be wound up by an authoritative statement embracing the views of the various speakers . . . . in such a manner as would enable the profession to arrive at a reasonable and just verdict, and to feel satisfied that their conclusions were right." he attempts an analysis of the opinions of the various speakers on 1. The duality of syphilitic poisons; 2. The relationship of its various stages; 3. Whether the tertiary stage is a blood disease, and 4. The relationship between syphilis and scrofula. On the first point, out of 21 speakers, 11 ignored the question, 3 (Paget, Wood, Robinson) agreed with Mr. Hutchinson as a Unitarian (pathologically and not theologically be it observed), while 7 (including Henry Lee and Hill) were opposed to him, and so "no real decision was arrived at on the theory of dualism." As to the second point only 8 members spoke on the analogy of syphilis to the specific fevers, most of whom gave a frank or a qualified assent, but "there was much divergence of opinion" as to the relation of the stages of syphilis and the relegation of the tertiary symptoms to the "sequelæ" of the disease as proposed by Mr. Hutchinson.

On the answer to the 3d point, "Is the tertiary stage a blood disease?" depends our advice as to marriage. Mr. Hutchinson considered that when the secondary symptoms become unsymmetrical the disease has become local only, but "that the risk of contagion appears to cease long before the risk of hereditary transmission." All those who spoke on this subject were against him. But to tilt against so careful and wary an opponent as Mr. Hutchinson is no trifling work.

On the 4th point most of the speakers were in accord with Mr. Hutchinson in believing scrofula and syphilis as distinct from each other.

We cannot see that the fog has yet lifted.

Dr. HEYWOOD SMITH presents a paper *On a Form of Non-Malignant Induration of the Cervix Uteri*, the "areolar hyperplasia of the cervix" of Gaillard Thomas. He describes clearly its symptoms, its differential diagnosis from cancer, with which it is most frequently confounded, considers "impregnation and subsequent sub-involution the all-important factor in its production," and after proper preliminary treatment advises the application of caustic potash for its cure. He concludes by calling attention also to the usefulness of Paquelin's petroleum or thermo-cautère, an instrument which many who attended the International Medical Congress in this city will remember to have seen, and which can now be obtained at our instrument makers. It promises to be a most excellent instrument. We must object, however, to such barbarous English (?) as "*hyperplased* connective tissue." (p. 203.)

"A young contributor," Mr. M. MACDONALD MCHARDY, furnishes some remarkable *Clinical Contributions*. He first declined to contribute "on the ground that his personal experience was too limited to be worthy of record, but a grateful sense of the value of information (!) and the importance of some of the clinical experience he has gained," overcame his modesty, and he "offers his mite." His paper opens with a case of pistol-shot wound of the heart, under Dr. Sands's care in Bellevue Hospital, in which the patient lived for six days, and ends with a case of ruptured perinæum operated on, also in New York, by Dr. Stimson, after the procedure of Dr. Willard Parker. Between these two he presents some remarks on three cases of death from chloroform, though only two are narrated. The first was a fine healthy girl of sixteen on whom he operated for strabismus. On the completion of the operation her pulse ceased, and her colour became leaden. The second was an intemperate man of fifty, who presented the same symptoms after reduction of a dislocation of the shoulder. That we may do Mr. McHardy no injustice we quote his own words, describing his conclusions and his methods in such cases: the italics are our own.

In the first—

"Full deep inspirations followed as a *reflex response* to forcible drawing forward of her tongue; but beyond this no sort of vital action could be restored though *galvanism* was freely applied along the course of the *pneumogastric* nerves. Artificial respiration was practised, though without good effect, as death was so clearly due to cardiac failure, and reflex inspiration could readily be induced upwards of half an hour after the fatal event." (p. 258.)

In the other case—

"Lest the shock of the operation in his very slight degree of anæsthesia might have made the patient faint, having secured his tongue forward I inverted him. Artificial respiration was tried for the satisfaction of my colleague, though I had even less hope from that than from *acupuncture of the heart*, which I tried without result." (p. 260.)

What was done in the third case on which he has reflected is left to the imagination, but should he ever have another he proposes—

"When complete failure of the heart occurs from the administration of chloroform to *try the effect* of the immediate injection of *strong liquor ammoniæ* into a vein as has been so successfully practised in some cases of snake bite." (p. 262.)

Verily the litany should be a trifle lengthened!

The English Hospital Reports are to a certain extent *ex cathedrâ* statements both as to principles and practice, and the editors should see that such papers as this are excluded unless peradventure they be intended as warnings. When "young contributors" have any scruples they ought in general to be respected. Moreover it is out of place in a St. George's Hospital Report to make up a paper from two American cases not under the author's care, and two English cases which unfortunately were, but not in the hospital.

Next follows a paper of thirty-five pages by Mr. TIMOTHY HOLMES *On the Amputation Book of St. George's Hospital.* In 1866, in the first volume of these reports, he analyzed 300 cases of amputation in the hospital, and he analyzes 200 later ones and reviews the 500 all together, adding also some remarks on antiseptic dressing.

It is impossible to follow him either in his reasoning or his results in a brief notice, such as we must here give. Suffice it to say that he has made a searching and discriminating analysis of the cases recorded, not resting content with fallacious percentages, but judiciously showing what these mean and how they should be read. He does not believe in hospitalism, and thinks that Miss Nightingale and others have exaggerated the relative importance of hospital construction, ventilation, air-space, etc., when compared with the question of most careful after-treatment. "It was a true surgical instinct that led Prof. Lister to look to the after-management of the case for the means of diminishing as far as might be the mortality in an unselected series of amputation; and I think we can trace a sensible diminution of the mortality since 'the antiseptic method' has come into vogue." He does not believe Lister's theories, nor does he practise his frequent washing out of the parts, deeming it too great interference, nor follow out all his minute details; but he does insist on ample drainage, as little interference with the wound as possible, scrupulous cleanliness, antiseptic coverings, and personal attention to the wound by the surgeon himself.

Reports follow giving the brief histories and tabulated operations of the surgical cases for 1874, 1875, and 1876, respectively, by Messrs. Rowland, Thrupp, and Morgan.

For two years' work of the surgeons of St. George's Hospital we consider this volume a very meagre harvest. W. W. K.

We shall now notice the papers which more particularly interest the physician.

Dr. ROBERT BARNES, in *A Clinical Study of Retro-uterine Tumours*, has given a contribution to gynæcology of great practical value, in which he discusses a matter of present interest, not merely to the specialist, but also to every one who may be called upon to assume the responsibility of conducting a case of labour to a successful conclusion. The style of writing and manner of discussing the subject are at once so clear and condensed, that any review short of a republication would necessarily fail to do justice to the paper or its author; but a brief outline of the argument may be attempted. The article is written in order to call attention to the various abnormal products that may occupy the *cul-de-sac* of the peritoneum, the so-called "Douglas's pouch," and to indicate their points of differential diagnosis, and also by furnishing illustrative cases to suggest their rational treatment. Pressure from a foreign body in the embrace of this recto-uterine fold, has vesical irritation as its first pressing symptom, because the remaining pelvic viscera which transmit the force to the bladder, have less urgent functions to perform, and the pressure, ordinarily, is not sufficiently severe to completely interrupt those functions.

"Hence it is that the first warning we get of some pathological event taking place in Douglas's pouch is often distress of the bladder. For the moment, probably, every other trouble is of minor importance. To this our attention is necessarily drawn; to relieve this is our first imperative duty; but remembering the great clinical fact that obstruction of the bladder in women is almost invariably the consequence of disease or mechanical pressure, external to the bladder, our next indication is to go in search of the external obstructing cause.

> "Premising that, as an anatomical fact, the left retro-ovarian pouch is deeper and more capacious than the right, in sympathy with the close relation to the rectum on that side, it follows from this disposition that smaller effusions or solid bodies always finding accommodation in the left pouch are felt on vaginal and rectal exploration to be on the left of the uterus, and not directly behind it. It is only when the intruding mass becomes larger that it extends to the retro-uterine and to the right retro-ovarian compartments."

It is subsequently mentioned, as an important practical application of this fact, that in opening a retro-uterine abscess "the trocar or knife must be plunged in on the left side of the cervix uteri, and not directly behind it, in order to enter *the centre* of the inflammatory focus."

The consideration of the various morbid causes of retro-uterine tumour are then taken into consideration, and are divided for convenience into groups, each being illustrated by notes of cases.

Group I. Retroversion of the gravid uterus has one notable example: A lady, three months pregnant, had a fall, which caused retroversion, and ten days later came under treatment with retention of urine and stillicidium. Six pints and four ounces were drawn off from the bladder by the catheter, and the process was subsequently repeated, several times daily, until the bladder could be emptied by natural effort. No treatment was directed to the uterus, save the insertion of a large Hodge pessary. The patient completely recovered, and was delivered at full term of a healthy child. This case is supplemented by another of retro-*flexion* of the gravid uterus, followed by abortion after the application of a lever-pessary. Complete reposition of the uterus could not be satisfactorily achieved until the organ had thus relieved itself. The distinction existing between retro-*version* and retro-*flexion* of the gravid womb is next dwelt upon, the importance of the diagnosis lying in the fact that in retroversion the cervix is thrown upwards and forwards, while in retroflexion the os looks downwards in the normal direction, a feature common to most or all of the cases in which the uterus is pushed bodily forward by some foreign body getting behind it; and further—

> "It may be laid down as a general rule, that in retroversion and retroflexion of the gravid uterus, but more especially in retroversion, owing to the leverage movement, the *os and cervix are lifted higher up* behind the symphysis, whilst in most cases of displacement from foreign bodies pushing the uterus forwards, since the mass comes down upon the uterus from above, this organ is *pushed downwards as well as forwards.* Thus it is common to find the os uteri near the vulva, or at least near the lower edge of the pubic arch. But there are exceptions to this rule."

Group II. comprises two cases of extra-uterine gestation. One patient, in the fourth month of pregnancy, had many of the symptoms of retroversion, and unsuccessful attempts were made at restitution. A month later, after the discharge of several portions of decidual membrane, a sound was passed into the womb, a correct diagnosis made, and the retro-uterine cyst tapped with the aspirator. This operation was repeated several times, and a permanent opening formed, into which iodine injections were thrown. In the detritus several small bones were found, and others were subsequently extracted. Two months later the patient had almost entirely recovered. The second case of tubal pregnancy strongly simulated pelvic hæmatocele, as it was apparently attributable to a fall from a chair, the accident being immediately followed by hemorrhage, which continued, more or less, for four months. The patient subsequently (six months after the first) had another fall, with again a profuse discharge of clotted blood, lasting one week. Four months after this she came under treatment, and died a month later of peritonitis. At the autopsy a five to six months' fœtus was discovered in the recto-uterine pouch, the placenta being adherent to the posterior surface of the cyst.

Retro-uterine hæmatocele, with two cases, forms Group III.; and Group IV. contains four instances of dermoid cysts, one of which obstructed labour and required tapping, and two suppurated after labour, one of which perished of pyæmia, and the other recovered after a tedious illness. Retro-uterine, or peri-uterine abscess, indurations from plastic deposit, fibroid outgrowths from the uterus, myomatous, and malignant disease, are all considered in this interesting paper, which we heartily commend to our readers for further study.

The Causes and Outcome of Nerve Degeneration, by Dr. G. F. BLANDFORD, is the substance of the "Introductory Address" delivered at St. George's Hospital at the opening of its last session, being contributed to this volume at the request of the Medical Committee. After calling attention to the increase in neurotic affections in sympathy with the development and evolution of the human organism under the stimulus of our rapidly advancing civilization, which makes such constant demands upon brain and nervous system, the author takes up, seriatim, some of the prominent causes of nervous degeneration, which he declares belongs in a great measure to the list of "preventible diseases." Among these active influences he considers, first, insufficient and improper food. Another predisposing cause is declared to be unhealthy habitations. Occupation must also have its effect on offspring. That which makes a great and incessant call on the mind, which shortens sleep and relaxation, and entails perpetual worry and responsibility, must affect the children as well as the individual. On the other hand, the blank idleness of the mind, which rests for want of occupation, is nearly as bad.

The importance of due hygienic care of the mother, especially during pregnancy, is pointedly dwelt upon; for "if women combine the bearing of children with the work, anxieties, and responsibilities of callings, which, as a rule, are undertaken by the other sex, the children will unquestionably suffer." This is considered a prolific source of idiocy and nervous degeneration.

Intemperance, especially among those who are already tainted with nerve-disorder, is stigmatized as "the most potent and most prevalent" cause of nerve degeneration; but the great source and origin, the *causa causarum*, of nervous disease, is hereditary taint. By the side of this all others fade into insignificance, and this brings up the question of fitness of the descendants of insane families for marriage, which is thus very judiciously disposed of:—

> "The way to stamp out insanity is to prevent the propagation of insane children. It is not to be supposed that insanity will never occur in our highly complex civilization. There must be losses and anxieties, reverses of fortune, poverty, and misery. It will be long before we see the extermination of drunkenness; but if we could confine the primary insanity to its victims, and prevent its being handed on to the next generation, we should go a long way towards diminishing its present rate of increase."

With regard to those others who possess evidences of a neurotic temperament, but who give no evidences of unsoundness except precocity, mental and sexual, and proclivity in early life for telling lies and wrong-doing of all kinds, it is said:—

> "We may not feel that the individual is one whom we can positively forbid ever to marry; but it is of the utmost consequence that he should not unite himself to another of the same kind or a relative. Married to a strong and sensible helpmeet, he may escape himself, and his children may inherit the constitution of the stronger parent, and throw off the neurotic taint."

Dr. T. CLIFFORD ALLBUTT contributes an article entitled *Cases of Menière's Disease*, in which he gives the clinical notes of nineteen cases of labyrinthine vertigo or Menière's Disease, and dwells on the fact that it occurs more frequently than is generally supposed, and that the diagnosis is quite easy. He gives the following as the symptoms by which the disease may be readily recognized:—

"The limits of age in my experience are from about twenty to seventy years. Its chief symptoms are vertigo, vomiting, a reeling gait, and noises in one or both ears, the ear or ears being also affected with deafness as to skull vibrations, and generally also to aerial vibrations. It differs from cerebral disease in the greater continuance and recurrence of very intense vertigo, vertigo often worse than that occasioned by any other malady, by the absence of loss of consciousness, save in rare and doubtful instances, and by the concurrence of this vertigo with remarkable noises in the ears. These noises are for the most part described as roaring, though they may be of other kinds. They are always, however, very troublesome and permanent, and often distracting. As regards prognosis it is stated that Menière's disease is not dangerous to life, not even indirectly so by extension of inflammation, or by complication; but it is of very long duration, and may embitter a great part of life. The cause of the symptoms is now known to lie in an affection, irritative or destructive, of the semicircular canal of the inner ear—the malady has therefore received the name of 'labyrinthine vertigo.'"

In a paper on *Croup and Diphtheria*, Dr. E. L. FOX contrasts the two affections, and incidently mentions several fatal cases of non-membranous laryngitis, which are sometimes spoken of as instances of croup. He points out the familiar points of difference in characteristic cases, both in clinical course and treatment, and draws the following conclusions:—

"1. That a form of croup exists non-membranous, often terminating in the pouring out of pus, and often fatal.

"2. That membranous croup is a disease by itself, attacking the air passages mainly, if not solely. The tendency to it is often hereditary.

"3. That diphtheria is a specific disease, attacking mainly the parts above the glottis, or denuded surfaces of the skin, and somewhat rarely the larynx, trachea, and bronchi; and that in most cases the affection of the air passages is later than that of the other regions.

"4. That exceptional cases of diphtheria occur in which the air passages are first affected, and the parts above the glottis later. And, perhaps, in the course of an epidemic an occasional case of diphtheria will be met with, attacking the air passages only.

"5. That the general character of the false membrane in the larynx and trachea may be very similar in both diseases.

"6. That in its etiology, in many of its symptoms, in its sequelæ, in the regions most usually affected, in the treatment necessary, in its mode of destroying the patient, and in its contagious properties, diphtheria is distinct from membranous croup.

"7. That, nevertheless, the diagnosis is not always easy."

It is presumed that many will be found willing to acquiesce in the final proposition, who may not give such ready assent to some of the others.

Dr. A. W. BARCLAY, in a *Report of the Analysis of the Urine in Three Cases of Acute Rheumatism treated with Alkalies and Quinine, and Two Cases treated with Salicylate of Ammonia*, concludes that the alkaline treatment is valuable, as it not only neutralizes any excess of acid in the system, but its free administration also gives rise to diuretic action, by which the elimination of waste material is considerably promoted, and that to secure this effect it is desirable to push the remedy till copious phosphatic deposit in the urine is obtained. The addition of quinia to the treatment is declared to be not in any way injurious, and it is said that "it has no influence over the urinary secretion beyond that of occasionally rendering it less alkaline in its reaction; and that the alkali is not neutralized by any excess of either uric or phosphoric, but some other acid." In comparing the analysis of the urine of these cases with others treated by salicylate of ammonia, it is remarked:—

> "One cannot fail to observe that the alkaline treatment has a diuretic power which salicin does not at all possess; and that there was comparatively little change in the characters of the urine secreted, when the action of the salicylate of ammonia was pushed to its utmost limit, and the pain had wholly subsided, without any recurrence or relapse. Then again it is to be observed that the excretion of uric acid was in these two cases very much larger in proportion to the other constituents of the urine than is to be found in the cases treated with alkalies. Not only so, but the actual quantity got rid of in twenty-four hours was also considerably greater. Important as these facts may be with reference to our knowledge of the action of these two substances, they do not seem to throw any light on the treatment of acute rheumatism, and afford no explanation of the rapid and powerful influence of the salicylic salt. . . . . . I cannot but call attention to the circumstance, which seems to me deserving further study, that the acidity was so little affected either in the way of increase or diminution during the rapid cure of a disease which is so remarkable for its acid secretion. It certainly, too, throws a doubt over the conclusions which some observers have arrived at that the symptoms are mainly due to acid present in the system, circulating in the blood, and irritating the tissues. It seems doubtful whether this acidity be more itself than a symptom of the disease, if, as in these cases, its secretion remains almost unchanged, while the patient passes from a state of extreme pain to one of perfect freedom."

Drs. T. WHIPHAM and R. T. POOLE COLLYNS furnish an article *On the Effects of Salicin, Salicylic Acid, and its Salts in the Early Manifestations of Rheumatism, with an Appendix showing the Results of their Administration in a Case of Disease of the Hip-joint, Erysipelas, Diphtheria, and Tuberculosis.* The results of the experiments tend to prove that in some cases of rheumatism at its onset, the disease yields after a few doses, and that in others the pains are relieved in a few days, but the remedy should be continued in smaller doses for some days after the remission in order to prevent a relapse.

In the following paper on *Cases of Rheumatism treated by Salicylate of Soda*, by Dr. JOHN CAVAFY, similar good results are reported. The clinical notes of a number of cases are appended, in the majority of which "the pain was abolished and the fever subsided simultaneously, and mostly within twenty-four to thirty-six hours after commencement of treatment." It is recommended that pains be taken to obtain the drug chemically pure, as it is liable to be contaminated with carbolic acid.

Dr. T. WHIPHAM also contributes *Notes from the Skin Clinique of St. George's Hospital*, in which the diagnosis and clinical course of the various every-day forms of skin affection are lucidly described, with full notes of cases, the directions given for treatment being apparently in accordance with sound therapeutic principles.

Intertubular Changes in Renal Disease is the title of a paper by Dr. H. HOWARD MURPHY, in which it is asserted from the study of the specimens obtained from nineteen cases of Bright's disease, that the large white and granular kidneys are both accompanied by intertubular growth.

Research on Fat Absorption is the title of a paper by Dr. HERBERT WATNEY, which, like the preceding article, was presented as a graduating thesis. The microscopic anatomy of the mucous lining of the small intestine is carefully studied, with a view to determining the physiological process of fat absorption, for in the absorption of fat from the alimentary canal the fat traverses a definite tract; this tract corresponds to a certain tissue; it is therefore probable that this tissue (the reticulum observed in the stroma of the villus) is the path by which absorption takes place.

Dr. J. C. J. FENWICK gives a list of the *Cases of Scarlatina in St. George's Hospital* occurring in twenty years. The total number of cases admitted was 456, with a mortality of 49. Thirty-eight cases occurred in the institution, of which only two died.

> "The most notable feature in the above table is the difference in the rates of mortality of the two divisions. In those cases that were admitted with the disease, the mortality rises as high as 10.7 per cent., whilst in those cases that occurred in the house it only reaches 5.1 per cent. This, no doubt, is to a great extent accounted for by the early recognition of the disease in these cases. It is also worthy of note that during the whole twenty years only two cases died of scarlatina caught in the hospital, and one of these was attacked in a surgical ward, the poison in that case very probably imported by visitors. Surely these facts require grave consideration from those who strongly advocate the total exclusion of cases of scarlatina from general hospitals."

Dr. J. C. J. FENWICK, in the *Report of Medical Cases* admitted during the years ending December 31, 1874, and December 31, 1875, contributes the notes of a number of cases of more than usual interest, with the post-mortem results.

The *Report of Medical Cases* for 1876 is made up by Dr. ISAMBARD OWEN, but is rather more extensive, and is very carefully compiled on the same general plan as was adopted in preceding years.

The *Report of the Maternity Department*, by GERALD S. HARPER, Esq., for five years ending December 31, 1876, concludes the reports. In it are given the details of presentations, complications, and deliveries, and the clinical notes of several cases of puerperal pyemia and convulsions. During the period named 2399 children were born in 2377 labours, with only 62 still-births, about 2.5 per cent. As an illustration of the imperfect manner in which the valuable aid of the forceps is regarded, and of the dread of instrumental interference, we quote the following faint praise:—

> "The forceps have been applied twenty-four times; in no case did the mother suffer any injury. In two instances the child was dead when extracted; but there is no record as to whether death had taken place previous to the use of instruments."

How many hours of suffering, and how many lives might have been saved by a timely resort to the friendly aid of the forceps is not distinctly declared, but may be inferred from the statement made regarding the number of still-births:—

> "In thirty-seven of these cases the vertex was the presenting part, and there is no reason given to account for the loss of life."

We think we have suggested an efficient reason.

A tabular statement of the cases of confinement for twenty years concludes the report, in which there were 7952 cases, with 74 twin births. In these 8026 deliveries the short forceps were used 53 times and the long forceps 9 times! The operation of craniotomy was performed 20 times in all, and 5 times upon one patient with contracted pelvis, which may be regarded as an illustration rather of the perseverance of the saints than of the survival of the fittest. F. W.

ART. XXIX.—*Medical and Surgical Reports of the Boston City Hospital.* Second Series. Edited by DAVID W. CHEEVER, M.D., and F. W. DRAPER, M.D. 8vo. pp. xxxv. 316. Boston: Published by the Board of Trustees, 1877.

THE first series of the *Medical and Surgical Reports of the Boston City Hospital* appeared in the year 1870, published in a large octavo volume, which was noticed in the number of this Journal for April. 1871, p. 506. As an extended account of the foundation and progress of the Institution from its building, in 1864, to the end of the first semi-decade of its history, June 1, 1869, occupied a prominent position in the former volume, so the present series is prefaced by a well-written description, by Dr. Edward Cowles, of the extensive additions and alterations that have been made more recently, and of the present condition of the hospital. For, although the preface professes only to bring the reports up to the end of the second semi-decade, June 1, 1874, the account is in reality brought to the time of publication, and includes changes that were only completed last year. A fine, double-page steel engraving of the buildings of the Institution as they now appear is placed as a frontispiece to the volume, while the description is embellished with six full-page plates, which clearly illustrate the plans and elevations described in the text. Such diagrams are of value, not only as displaying the improvements that have been undertaken, and the system of ventilation and warming, but also have permanent and intrinsic merit for every one who is interested in the architectural economy and administration of a progressive and well-appointed institution, standing in the front rank of American hospitals. Its present capacity does not appear in the description, but as it was 230 beds before the additions, it is probable that the building can now accommodate considerably over 300 patients. The new buildings are five in number, and were completed in 1876. The Institution, as originally designed, consisted of a large central or administration building flanked by two three-story pavilions, which, however, were thrown to the front facing each other, their rear being connected with the centre by two long corridors, one of which ran to each side of the main building. It was at the centre or elbow of each of these corridors that a new three-story building was recently erected, one being devoted to medical and the other to surgical purposes, the latter containing an operating theatre in addition to the dispensary, receiving, and waiting rooms, wards, and private rooms for paying patients, that were common to the plans of both these buildings. Behind these, and stretching out from the rear of the administration building, like the arms of a cross, have been placed two one-story pavilion wards, also connected by open corridors with the centre. The fifth recent erection lies directly at the rear of the main building: it is also of one story, and is used for culinary purposes, the food being from thence conveyed along the corridors in covered cars to all parts of the Institution. Besides the buildings just enumerated, a two-story pavilion was placed near the southern corner of the grounds in the year 1865, for male and female isolating wards, but which was also connected with the auxiliary buildings extending from the rear of the administration proper by a long corridor.

Passing the details of ventilation and warming, we merely notice that contrary to general experience, and the recent action of the managers and staff of our own Pennsylvania Hospital, they have found it advisable to discontinue forced ventilation by a fan, and have gone back to the plan of ventilating shafts, drawing the foul air from the wards by aspiration. It is, however, in explanation, distinctly stated that—

"In what has been said of the use of the fan it is not intended to imply any condemnation of the system it involves. Local difficulties in properly carrying out such a system were, perhaps, sufficient to account for its failure here. If the fresh air duct could be made air-tight, and properly accessible for purposes of cleansing of dust, etc., it must be admitted that the fan might be used with advantage for at least the two older pavilions, which now lack all artificial ventilating force."

In regard to fresh air supply of the three-story buildings it is said that—

"The [aspirating] chimney is used only to ventilate the rooms of the basement and the first floor; the warm and vitiated air from them being conveyed laterally, or only a little downward, to the base of the chimney is practically kept on its way upward and outward. The two upper stories are ventilated by a different plan, their outflowing air being simply aided in its upward tendency by being drawn into the chamber in the roof. There is thus no loss of power in first drawing the air downward to the chimney base; there is no danger of the common trouble in such cases of reversed currents of foul air from the first to the upper stories through the ventilating flues of the latter. . . . Each room in the building has one or more separate ventilating flues, extending from the floor to the ceiling in the wall next the corridor, and each flue has two openings into it and within it a valve that can only be moved by a key. The entrance to the flue is thus practically always open either at the top or bottom of the room. Thus all upper outlets can be closed, compelling ventilation through the lower openings during the winter season, with the certainty of remaining so at the will of the superintendent, and beyond the reach and interference of unwise attendants or meddlesome patients. In the same manner, by simply turning the valves, the ventilation can be made to proceed through the upper openings in summer."

The inlet flues for fresh air in like manner open either at the top or bottom of the room as desired, the cold air being previously warmed by steam coils in the basement, of which there is a separate one for every flue, inclosed in a chamber of galvanized iron. It has been found most satisfactory in winter to introduce the fresh air by the upper registers and extract foul air by the lower ones. In summer the contrary method is recommended.

Each one-story pavilion has a basement in which are coils of pipe to warm the fresh air, the amount of heat and the volume of air being under the control of the engineer. From the basement the air is received into the wards through openings under each window, the foul air being carried off by flues opening as before either at the top or the bottom of the room and conducted to the "ridge-pole," where there is another ventilating chamber, which admits of being heated by steam when necessary. The following results have been obtained, and they are interesting as bearing on the principles of hospital construction, the single story pavilion with "ridge-pole" ventilation being still on trial.

"With the fresh air entering the ward at an average velocity of 160 feet per minute, which the air-meter indicates is easily obtained, there are given to each patient 6000 cubic feet of fresh air per hour, and the whole volume of air in the ward, about 47,600 cubic feet, or about 1700 cubic feet per patient, is changed between three and four times hourly. The average of many observations has given a velocity of the inflowing air of over 200 feet per minute, without discomfort from draughts, equal to about 8000 cubic feet per hour to each patient. Artificial heat is only occasionally applied to the ventilating chamber.

"In cold or windy weather, when the movement of air is rapid, the volume of warm air passed through the ward is very largely increased, and partial closure of the inlets and outlets is required. The experience of a winter's use of the one-story pavilions proves the heating and ventilating arrangement to be very controllable, and, with proper care, a very uniform temperature and freedom from draughts has been obtained with the generous air supply. In general, it can be said that the peculiar arrangement of the apparatus, so that it cannot be interfered with by persons not appointed to adjust it, removes entirely the usual uncertainties and complications of such appliances, while it simplifies them and makes them easily managed."

The Treatment of Empyema by Permanent Openings with Cases, is the title of an article by JOHN G. BLAKE, M.D., which advocates, as the title suggests, free and early incision in the treatment of pyothorax as soon as the presence of pus is determined, and subsequent washing of the pleural cavity by antiseptic injections when the discharge is offensive. He reports one case, occurring in a boy, where empyema was cured by simple tapping, there being no reaccumulation of pus, and says:—

"A sufficient number of favourable results in children has been reported to justify postponement of the incision until repeated withdrawals of the pus fail to effect a cure. In adults the rule is to remove the pus at once by tapping, and on its accumulation to make the permanent opening. I am tolerably well satisfied that it is better to avoid unnecessary delay, and that, where pus is found in large quantities operation by incision should be resorted to immediately."

The details of nineteen cases of pyothorax treated by free opening are given, ten of which entirely recovered, five were much relieved, three died under treatment, and one died from causes entirely disconnected from the operation or the disease. Local anæsthesia by ether-spray, or salt and ice, is preferred to full etherization. The period of treatment in the successful cases varied widely from forty-four days to six months, and one of those reported "relieved" had been operated upon and remained under treatment three hundred and fourteen days, and was slowly improving at the date of the report.

In an article *On Certain Diseases of the Nervous Centres*, by Dr. ROBERT T. EDES, some points in connection with the subjects of intra-cranial syphilis, tumour of the spinal cord, and locomotor ataxia, are considered, and illustrated by cases. The paper is also accompanied by several plates, in which photographs of microscopical sections are admirably reproduced by the heliotype process. In considering syphilitic intra-cranial manifestations the notes of five cases are given, one of which has already appeared in full in the pages of this Journal in the number for April, 1875. Stress is laid upon the fact that the deposit of new formation recurring in syphilitic degeneration of the arteries, takes place not only in the inner coat, but, in some cases, a layer may also be found outside the muscular coat.

"This condition of the arteries plays a very important part in the production of symptoms, especially of those of a convulsive and paroxysmal character. It is not, however, as was at first supposed, characteristic of syphilis, a similar structure having been observed in non-syphilitic cerebral arteries, in phthisical lungs, in tumours, and in ligatured arteries forming the so-called 'organization of thrombi.' This is the process by which the *ductus arteriosus* and the umbilical arteries are closed after birth."

No characteristic symptoms of cerebral syphilis are said to exist, and as to the period of the disease at which such a lesion may occur, cases are quoted by Lanceraux to show that facial paralysis may occur from this cause "with the exanthematous syphilide, or in one month after the primary affection." In the treatment of intra-cranial syphilitic lesions the iodide of potassium, in large doses, is strongly endorsed.

In the "Case of Paraplegia from a Tumour compressing the Spinal Cord." Dr. Edes describes a flattened growth, two inches in length, which was found in the spinal canal on the anterior surface of the dura mater. The patient was a negress, aged 25 years, and for ten months had been gradually losing power in her lower extremities. The history threw no light on the cause of the trouble, but it was considered by no means improbable that it was of syphilitic character.

The post-mortem examination of three cases of locomotor ataxia showed characteristic lesions in the spinal cord, extending through its entire length.

Disease of the Brain in its Relation to Inflammations of the Ear is the title of a paper by Dr. J. ORNE GREEN, in which attention is called to the fact that a "purulent otitis might become the direct cause of death without the bone becoming diseased:"—

"The inflammations of the ear from which, as experience teaches, disease of the brain arises, consist essentially of a suppurative inflammatory process of the mucous membrane which lines the whole tympanic cavity;—in fact a periostitis of the interior of the petrous bone."

The secondary disorders of the brain from ear disease, are declared to be thrombosis or phlebitis of the sinuses, acute meningitis, and encephalitis, followed by acute or chronic abscess. Differential diagnosis, in view of the involved character of the various forms of brain disease, can only be made approximately by grouping the rational signs, there being no characteristic symptoms, and bearing in mind the fact that these disorders may mutually complicate each other.

Dr. HALL CURTIS, in *Notes of Cases of Pleurisy and Paracentesis Thoracis*, gives the details of seventeen cases of hydrothorax relieved by aspiration.

In *Clinical Notes on Erythema*, Dr. HOWARD F. DAMON contributes a study of the different forms of erythema from a clinical standpoint, with details of a number of cases.

An interesting paper on *Sclerosis of the Spinal Cord*, by Dr. S. G. WEBBER, gives characteristic cases illustrating sclerosis in patches, in its early stages, affecting only the cord, cerebro-spinal sclerosis at first simulating cerebral tumour, locomotor ataxia, and sclerosis of the lateral columns with muscular atrophy (*sclérose latérale amyotrophique* of Charcot). In the latter a microscopic examination of the diseased cord proved it to be in a state of interstitial myelitis. This paper is a valuable contribution to the clinical history and pathological histology of a group of diseases, now exciting much attention, whose differential study was impossible until Lockhart Clarke published his method of staining and clearing up the cord, and provided an improved method for examination of the nerve centres.

Dr. ROBERT T. EDES, in an article entitled the *Cold-Water Treatment of Typhoid Fever*, gives the experience of this method of treatment at the Boston City Hospital, with the extraordinary result that "of thirty-two patients in three different years, *where a clear diagnosis of typhoid fever in the first week is admissible*, only one died" (italics in the original); the fatal case being due to sloughing and perforation in the sigmoid flexure. In a total of sixty-six cases entering the wards in all stages of the disease, most of which were treated by more or less bathing, eleven were fatal, the death rate being about eighteen per cent. Such results warrant a brief consideration of the details of treatment.

"The patient is placed in a bath near the temperature of the body, 100° for instance; then warm water is drawn off and cold added until a limit of between 80° and 70°, or less, is reached. Two or three feet of India-rubber hose, slipped upon the cold-water faucet, is convenient in cooling the bath equally and avoiding the splash and noise of the running water. The patient's limbs should be rubbed by attendants to equalize, as far as possible, the circulation, and thus promote the cooling from a large surface. At ten or fifteen or more minutes he may begin to shiver, and he should then be placed in bed and covered up. If the chill be severe, heaters may be placed to the feet, the amount of heat thus added at a distance from the trunk being small, while it greatly relieves the subjective sensations of chill. A glass of wine may also be administered, especially if, as sometimes happens, the pulse becomes small, . . . indeed I am not sure that it would not be better to make its use the rule rather than the exception."

A temperature of 102°–104° is taken as an indication for the baths, of which several may be administered in the course of the day; four per diem being not uncommon, three being given in the afternoon and evening to anticipate the high temperature, it being found by experience that a bath late in the evening often materially aids in procuring a good night's rest.

The treatment after bathing was rest, liquid diet (chiefly milk), alcohol, frequently, especially towards the latter part of the disease, and a few antipyretic doses (gr. 20 to 30) of quinia were necessary. No remarks are made regarding the palliation of symptoms, but it is probable that the treatment of excessive diarrhœa, hemorrhage, perforation, etc., is that which obtains elsewhere.

Dr. W. P. BOLLES, Pathologist to the Hospital, gives the notes of some interesting *Cases with Autopsies*, including one of poisoning by oil of cedar taken to produce abortion ; one of acute phosphorous poisoning, in which fatty liver and kidneys were found, death having occurred forty-six and a half hours from the time of taking the poison. The remaining cases were "Slough of Uterus, with Metastatic Foci in the Lungs" following parturition, "General Emphysema following Thoracentesis," one of Fracture of the Spleen and extravasation of blood in the lungs from rupture of vessels, a "Rupture of Aortic Valve" without a history of strain or injury. "Slough of Gastrocnemius Muscle" following inflammation caused by exposure, "Embolus of Left Middle Cerebral," and one of "Embolism of Left Carotid" in a case of rheumatism with valvular lesion. A case of fracture of the skull occurred where the bone "nowhere averaged one-eighth of an inch in thickness. The occipital bone was the thinnest, it was very translucent; in its fossæ it measured only one-fiftieth of an inch, and in its thinnest places was not thicker than writing-paper." Under such circumstances it is not surprising that, after falling a considerable distance, "the skull was extensively broken and the brain much lacerated." F. W.

According to our custom, we now invite the attention of our readers to some of the surgical papers of this volume; and the first is entitled *Unusual Operations on the Generative Organs*, by D. W. CHEEVER, M.D. In this paper two interesting cases of severe injury to the male genital organs are recorded, in which the denuded testicles were successfully covered by skin-flaps taken from the thigh. And one case of atresia vaginæ in a young woman, nineteen years of age, on whom the operation of opening the integuments to a cavity filled with pus was performed, and on the upper part of this cavity was found the os tincæ. The girl recovered, and is now in excellent health.

The next paper is on *Compound Fractures*, by GEORGE W. GAY, M.D. One hundred and fifty-seven cases of compound fracture of the arm, forearm, thigh, and leg, were admitted to the Boston City Hospital during the five years ending June 1, 1874. Of these, 92 recovered, or 59 per cent.; and 65 died, or 41 per cent. The mortality rate under conservative treatment was 44 per cent., and the number recovering after amputation was 39 per cent. One-half of the fatal cases expired within forty-eight hours after entering the hospital. These compound fractures were as follows: arm, 25; forearm, 35; thigh, 23; leg, 74.

Doctor Gay presents the following conclusions, derived from a review of the experience of this hospital for ten years, and from various sources:—

"1. The conservative treatment should be adopted in the majority of cases.

"2. Primary amputation should be resorted to as seldom as possible, on account of the danger of shock, the increased liability of amputations to be followed by pyæmia, and the more favourable results of secondary operations.

"3. Amputation is usually to be advised, if the knee-joint is opened, or the lower half of the femur comminuted, or the main vessels and nerves destroyed, or if there be extensive laceration of the soft structures, with comminution of the bones.

"4. If the bones are not comminuted, and the soft parts are not much injured, and the opening is not large, an effort should be made to convert the compound into a simple fracture by immediately closing the wound with a dry compress, or one moistened in blood or carbolic oil.

"5. Should the bones be comminuted, or the tissues much bruised, free incisions should be made through the skin and fasciæ, to relieve tension, and remove fragments, and give a ready exit to all discharges.

"6. Loose pieces of bone, splinters, and foreign substances of all kinds, should be removed at the earliest possible moment, and we should not hesitate to enlarge the wounds freely for this purpose.

"7. The utmost cleanliness of the patient's wounds, dressings, bedding, and of all his surroundings, should be constantly preserved.

"8. The patient should breathe pure air day and night.

"9. The limb should be allowed to rest in the easiest position for the patient which will allow the fragments to be kept in their proper place, and excoriation from undue pressure to be avoided."

In reading this paper we are impressed with the high degree of mortality it exhibits. Dr. Gay accounts for this when he says there were repeated epidemics of pyaemia, attributed to defective drainage and ventilation, which he says have now been remedied. But what are we to think when he adds that "the hospital is built on new land, formerly reclaimed from the marsh"!!!

Surely, in furnishing a retreat for the worthy poor of their city, the good people of Boston do not mean to offer them a stone for bread; yet so long as their hospital stands upon land reclaimed from the marsh, they may expect a high rate of mortality, whatever talents their surgeons may discover. In their next report we may look for a repetition of the epidemics of pyaemia; and, in short, all the evils consequent upon sick and wounded people inhabiting a hospital located upon a reclaimed marsh.

Albuminuric Retinitis is the title of a paper by Dr. O. F. WADSWORTH. In this paper Dr. Wadsworth presents several cases of Bright's disease of the kidney. He says that a positive diagnosis can never be made from ophthalmoscopic examination alone. A high degree of probability may be attached to a diagnosis so made in a few cases; in some others there would still be a considerable degree of probability. In a vast majority of cases the ophthalmoscope would show no change or changes in no respect characteristic. The urine must be the final test. That the anatomical changes in the retina consist of hemorrhages in the nerve-fibre and deeper layers; exudation of serum; proliferation of connective-tissue elements, with subsequent fatty degeneration; sclerosis of connective tissue and nerve-fibres. The radial fibres may be enlarged both in thickness and in length; they may become condensed, homogeneous, more strongly light-refracting—that is, sclerosed; or undergo fatty degeneration; or extend backward, so as to destroy the rods and cones and epithelial pigment layer. The connective-tissue cells proliferate and become fatty. In general, fatty degeneration is greatest in the granular layers. The adventitia of the vessels may be thickened, and the wall of the larger vessels and capillaries sclerosed. The pathology of albuminuric retinitis has no absolute typical character. Not only the white patches and the radiating figure about the macula, but also hypertrophy of connective tissue, fatty degeneration, and sclerosis both of nerve-fibres and of radial-fibres are found in retinitis from other causes—such as cerebral tumour, for example.

A Case of Large Renal Calculi.—Dr. STEDMAN presents the history and autopsy of a patient, aged sixty-five, who died with a remarkable condition of his kidneys. The right kidney was hardly more than a cyst, holding two large stones and many smaller ones. (The paper has a good lithographic plate accompanying it.) The left kidney was represented by a little, thin, kidney tissue, drawn like a membrane tightly over a great calculus. Large processes fitted into the calices; and a tail-like projection went into the opening of the ureter. The bladder contained no foreign body. This large deposit consisted entirely of ammonio-magnesian phosphate. The patient never had any pain. He carried this quarry without any symptoms whatever until within six months or a year of his death.

Dr. CHEEVER presents the history of two very interesting cases of *Excision of the Elbow-Joint.* One case, aged fourteen, was from disease; the other case, aged nineteen, was from an accident; the result in both cases was excellent. The one nineteen years of age is still living, with a very useful limb, now three years after his accident: the other, aged fourteen, died seven years after the operation, and, having had an exceedingly useful limb for quite the whole of this period, bequeathed his elbow-joint to Dr. Cheever, who gives an interesting description of its appearance on dissection, with excellent plates.

The Significance of Pus in Ovarian Fluid is the title of a paper by Dr. JAMES R. CHADWICK. Dr. C. states that the presence of pus in ovarian fluid is evidence, not of [acute] inflammation, but of ulceration of the lining membrane of the cyst-wall. In the case related he believes the origin of this process to be in the frequent punctures of the cyst with the trocar. The perforation of the cyst-wall in the course of this ulceration, indicates the imminent danger to which patients are subject, and calls for quite as prompt operative interference on the part of the surgeon as do the symptoms of acute inflammation.

The Surgical Abstract, by Dr. D. W. CHEEVER, contains 65 pages, and is in twelve sections. The first section is on Operation on the Larger Blood-vessels; and the last is on Strangulated Hernia. There were 22 excisions of joints; 13 dislocations of the clavicle without fracture; 8 were of the acromial end; 4 of the sternal and 1 of both extremities of the bone. Tracheotomy was done nine times; three for croup, and six for other causes. Dr. Cheever often performs tracheotomy as a preliminary step to removal of the upper jaw. Its advantages, he claims, are in freedom from suffocation by blood, ease to the operator. and lessened danger from shock. He does not enter into any of its disadvantages or risks.

In gunshot wounds there were 62 cases. In penetrating gunshot wounds of the chest, Dr. C. says there are three methods of treatment open to us:—

"1. To seal up the wound; a mode which," he says, "now has scarcely a single advocate.

"2. To pursue a strictly expectant course, and not tap or open freely the pleura until pneumothorax, hemorrhage, or effusion calls for interference.

"3. To lay open the tract of the wound, and make at once a free and permanent pleural opening."

He gives a very interesting case of the happy termination of this mode of practice.

The last paper of the book is entitled *Statistics of Major Amputations* by B. F. GORMAN, House Surgeon. In this we find the following amputations and results: Of the shoulder-joint there were 20, of which 12 recovered, and 8 died. Of the arm there were 53, of which 38 recovered, 14 died, and one removed. Of the forearm there were 37, of which 32 recovered, and 5 died. Of the hip-joint there were 3, traumatic primary, and all three died. Of the thigh there were 89, of which 41 recovered, and 48 died. Of the knee-joint there were 8, of which 4 recovered, and 4 died. Of the leg there were 71, of which 48 recovered, and 23 died. Of the ankle-joint there were 14, of which 11 recovered, and 3 died.

Thus it appears that in all there were 295 amputations, of which 108 were fatal. A mortality indeed large. W. S. F.

ART. XXX.—*Some Recent Physiological Researches.*

1. *On a New Function of the Liver.* By B. F. LAUTENBACH, M.D. Philadelphia Medical Times, May 26, 1877.
2. *Electrical Phenomena occurring in the Heart.* By B. F. LAUTENBACH, M.D. Philadelphia Medical Times, March 31, 1877.

THERE is a tendency observed in many contributions to the medical literature of the day to avoid allusion to the labours of those who have previously investigated any particular line of study. We have no doubt that the cause of this omission is composed of two factors: first, from the fact that authors have taken too much for granted, they assuming that the general public is as well acquainted with the literature of the subject of which they are treating as they are themselves, and second, that writers, authors, and original investigators have multiplied with such rapidity in the last half century that it is almost impossible for any one to decide with certainty to whom the merit of priority in the discovery of any particular fact belongs. Writers nowadays, therefore, too often prefer to ignore those who have preceded them in their particular line of study, rather than to enter upon an endless discussion as to whether this or that investigator was first in the field. This is a habit which is rapidly growing upon us, and it is one which cannot be too severely condemned. Although we trust that in the great majority of cases the explanation we have given above is the correct one, any writer who advances as new or original, facts, theories, or experiments which have been previously studied, and makes no allusion to their earlier investigators, lays himself open to one of two charges—either he is ignorant of the prior claims of others, or he wilfully suppresses them.

Particularly should this mistake be avoided in all physiological dissertations. There is, probably, no branch of science which has been more thoroughly investigated and studied from all points of view, and by some of the ablest minds which have ever existed, than physiology. How careful, then, should one be in stating that he has discovered a physiological fact—has opened unbroken ground in the domain of physiology; how carefully should he search the archives of physiology for the record of any similar investigation, and, if such is met with, how careful he should be to *clearly* acknowledge such claims to priority!

Let us see how our assumed position is sustained in the article whose title heads this notice. Dr. Lautenbach has chosen for the subject of his essay, "A New Function of the Liver," viz., the power which it possesses of destroying a narcotic animal poison which accumulates in the system after ligation of the vena porta, and has detailed a number of extremely interesting and ingenious experiments which he has made to substantiate his theories. We cannot, however, at the outset avoid being struck with the entire absence of all reference to previous investigators of this subject. This omission clearly is an instance in which an author has assumed a better acquaintance of the general public with the literature of his subject than is justifiable; for he has left our minds in doubt as to what portion of his essay he wishes us to receive as originating with himself. But, on the other hand, it is possible that the second factor we have alluded to may also be concerned in this omission, for we do not wonder that Dr. L. should hesitate to decide whose works, from the mass of those bearing upon the subject, deserve the merit of priority. Still it is unwise for an author writing upon such an important subject not to give at least some idea of what has already been accomplished in his field. Dr. L., then, not having touched upon this portion of his subject, let us see for ourselves what results had been already obtained when he commenced his labours.

Nearly a quarter of a century ago, Prof. Oré, of Bordeaux (*Comptes Rendus*, 1856, t. xliii. p. 436), first tied the portal vein in a dog, in a series of experiments made to determine the source of the biliary secretion. To his surprise in about two hours after the operation he noticed precisely the same symptoms which are detailed in the commencement of the paper under review, viz., symptoms analogous to those produced by a narcotic poison. "The animal was very singularly affected; it remains lying down, indisposed to move, perhaps panting, the mouth open and breathing rapidly. He appears insensible, particularly in the hind quarters when one pinches him. Finally he died the same evening" (quoted in

Bernard, *Leçons sur Liquides de l'Organisme*, t. ii. p. 191). Bernard also (*loc. cit.* p. 193) has seen the same results with more marked narcotic symptoms upon tying the vena porta at its entrance to the liver, and has also noticed that when it is tied below the splenic vein, the effects are merely transient. He also has seen pigeons live a whole day after ligature of the vena porta without any bad symptoms. M. Oré has also further observed that these symptoms do not occur when the vena porta is gradually obliterated. This he accomplished by imitating a natural process in causing a sort of artificial phlebitis: he simply applied a loose ligature and tightened it from time to time until it came away. During the five or six days required for this obliteration the animals exhibit no bad symptoms and after its completion may live a long while. By post-mortem injection he also proved that none of the portal blood in these cases entered the liver. Prof. Oré has also given a much more exact account of the post-mortem appearance of animals who have died after ligature of the vena porta, and lays particular stress upon intense portal congestion. "At times," says Dr. Lautenbach, "this engorgement," which he has also noticed, "is but slightly developed or entirely absent," which cases, he says, are explained by a communication which he has found between the portal vein and the systemic circulation. This evidently is the communication which has long been known to exist in all the three lower orders of vertebrates, and consists of a connection with the vena cava forming the "System of Jacobson." The portal accessory branches discovered by Sappey in 1859 (to which he also alludes), exist on the under surface of the diaphragm, and upon the inner surface of the epigastric portion of the abdominal wall and pass to the liver between the folds of the falciform ligament. One portion of these veins sinks into the convex surface of the gland, and here unites with the branches of the portal vein, while another winds around to the longitudinal fossa and passes in at the under surface; the largest of these accompanies the ligamentum teres. According to Sappey and Frerichs these vessels anastomose with the *epigastric* and internal mammary veins and superficial abdominal veins. It would indeed be a remarkable anomaly if these vessels could anastomose with the *mesenteric* veins, as our author says he has seen, and if such really was the case, we cannot see how the symptoms can occur which it is stated are "due to the accumulation in the portal vein of a poison which, under normal conditions, is destroyed by the liver." For here we have "a new portal circulation," where the blood is *not* prevented from reaching the liver, and where the liver is *not* prevented from destroying this poison, and yet we still have death under the same circumstances.

The thesis of the article before us is probably best expressed in its conclusions: "1st. The liver has for one of its functions the office of destroying certain of the organic poisons," and "2d. A poison is being constantly formed in the system of every animal which it is the office of the liver to destroy." As regards the 1st conclusion, no attempt has been made to show *how* the liver destroys poisons. That it does so was known many years ago: it is the old story of the liver as the purifier of the blood taught by Galen. In more modern times, A. F. Orfila (*De l'Elimination de Poison*, Paris, 1852). Mosler (*Untersuch über Uebergang von Stoffen aus dem Blute in die Galle. Giessen*, 1857), and Bernard (*Liquides de l'Organisme*, 1859) have shown the important rôle which the liver plays in freeing the blood from poisons. Bernard (*op. cit.* p. 208) has shown that iodide of potassium and sulphate of copper when injected into the jugular vein are eliminated by the liver before they appear in the urine, and, as an instance of its destructive function, has mentioned the changed form in which turpentine is eliminated by the liver after having been taken into the stomach. Bernard also has proved that *large doses of certain poisons may be injected with impunity into the portal circulation of animals, while much smaller doses of the same poison when* *injected into the jugular vein are immediately fatal.* In proving this, he made more than twenty years ago precisely the same experiment which, in the paper before us, we are led to infer is original. A solution of cyanide of potassium, 20 *parts* of the salt to 100 of water, was thrown into the mesenteric veins of a rabbit. The urine in a few minutes contained a large quantity of the salt, but the animal suffered *no inconvenience* from its presence in the *portal blood.* When, however, a solution containing 2 *parts* of the salt to 100 of water was thrown into the *jugular vein*, the animal *died* in a *few minutes*, and before the slightest trace could be detected in the urine" (*Brit. and For. Medico-Chirurg. Review*, Jan. 1854, p. 72).

Having then shown many years ago that the liver has the power of eliminating and destroying many poisons, and having shown that certain poisons are comparatively innocuous when introduced into the portal circulation, Bernard went still further and gave the only rational explanation of these facts. He pointed out in 1849 (*Comptes Rendus Soc. de Biologie*, p. 13)—and his explanation has been accepted and taught by nearly all physiologists—"that the peculiar *capillary circulation* of the liver has no other *raison d'être*, but to check, by delaying osmosis, the arrival in the general circulation of the products of digestion still charged with noxious substances." And he has further shown how the liver is assisted in its depurative function by a peculiarity in its circulation which he has described as the "Hepatico-renal circulation." (For a description of this and the experiments made to demonstrate it, see *Brit. and For. Med.-Chir. Rev.*, Jan. 1854, p. 72.) He has shown how the portal blood, still charged with impurities and delayed in its passage through the liver, is diverted into the vena cava through anastomosing channels and a contraction of the muscular fibres of the vena cava is caused, thus reducing its calibre and causing regurgitation of the column of blood; immediately below the orifices of the renal veins, however, this backward current is checked by the renal valves in the inferior cava and so compelled to flow off right and left through the kidneys, still bearing with it all the noxious principles.

It is true, that this explanation has been questioned by Dr. Robert McDonnell, of Dublin (*Glasgow Med. Journ.*, Oct. 1854, p. 285, and *Journ. de la Physiologie*, Avril, 1859, p. 300), but no matter what may be the cause of the phenomena discovered by Oré and by Bernard, and the explanation of Bernard's remarkable discoveries alluded to above, this fact remains, that the *soi-disant* new discovery, that death follows ligation of the vena porta, and that certain poisons are comparatively innocuous when injected into the portal circulation, is a very old one, which should be known to all students of physiology. Again, as regards the second conclusion, the idea that the blood contains excrementitious matters which are removed by the liver is a very old one. Flint (*Am. Journ. Med. Sciences*), in 1862, proved the existence of cholesterine in the blood, isolated it, described its nature, appearance, and source, and proved that the serious symptoms caused by interference with the hepatic function were due to the accumulation of this material in the blood; he also proved it was eliminated by the liver. On the other hand, how can our author explain the non-occurrence of symptoms in the experiment of M. Oré, in which he *gradually obliterated* the vena porta, and so prevented the portal blood from passing the liver? Bernard also has seen that the vena porta may be ligated in pigeons without causing any bad symptoms.

Having thus alluded to several authors whose works certainly have sufficient bearing upon the subject before us to deserve mention, we will attempt to show, as we happen to be in the way of rectifying omissions, to whom the credit of having first pursued this particular line of investigation is due. It would, indeed, be a hazardous guess to suppose from the expression, "experiments made in connection with Prof Schiff," or "assisted by Prof. Schiff," that Dr. L. intended to credit Prof. Schiff with having originated all the theories and ideas contained in his paper, and it is this very obscurity and ambiguity of acknowledgment we object to. But there happens to be proof that *such must* have been Dr. L.'s intention.

In the London *Med. Times and Gazette*, for June 9, 1877, p. 621, there is quite an elaborate abstract from a paper published in the *March* number of the *Geneva Archives des Sciences Physiques et Naturelles* (this Journal is not to be obtained in America), in which it is stated that Prof. Schiff began to investigate this new function of the liver in 1861; noticed precisely the same symptoms after ligature of the vena porta, and gave precisely the same explanation: "*Prof. Schiff admitted as the most probable [cause] that the economy of the mammifera always produces, as the result of the retrogressive metamorphosis of some of the tissues, a very energetic, narcotic, or poisonous substance, which is destroyed again in the liver, to which it is conducted by the venous circulation. After the ligature of the vena porta this substance accumulates in the body.*" (*Op. cit.*, p. 621.) This is the conclusion Prof. Schiff drew from his investigations begun in 1861.

We will make a comparison between Dr. Lautenbach's experiments published in *May* last and those of Prof. Schiff. On page 388, Dr. Lautenbach states that he has found that the venous blood of animals dying after ligation of the portal vein is more poisonous, injected into the blood of frogs with extirpated livers, than blood taken from animals which have not been thus treated. Prof. Schiff says: "We must prove that the venous blood of an animal dying after ligature of the vena porta acts otherwise and in a more deleterious manner than the venous blood of an animal dying under circumstances which do not favour an accumulation of this hypothetical substance;" and in the next column he describes much more clearly and fully than our author the experiments which he has made in this connection. It then occurred to our author "that the vena porta poison is not the only poison which can be destroyed in its passage through the liver," . . . . and "it seemed plausible that *nicotin* might be another such poison" (p. 389). Prof. Schiff says: "In order to support the theory by analogous facts, we ought to be able to demonstrate that the liver has the power of destroying or decomposing *other* better defined narcotic substances." Strange as it may appear, it also occurred to Prof. Schiff that *nicotin* might be such a poison. Dr. Lautenbach then gives (p. 389) as the result of one drop of nicotin injected into a mesenteric vein, "deep sonorous respiratory movements, an increased frequency and feebleness of pulse," and "retraction of bulb of eye," etc., and "loss of tactile sensation," while Prof. Schiff (p. 621, 2d column) gives as the symptoms under these circumstances, "1. The respiration becomes almost immediately deeper and more accelerated, with active inspiration; 2. Temporary acceleration of pulse; 3. More or less disappearance of tactile sensibility in all the extremities, which, however, does not impede locomotion; 4. Alterations in the eye when a large dose has been rapidly introduced; 5. Sometimes retching and vomiting; 6. The vagus loses for a short time its arresting power over the pulsations of the heart."

On page 390, Dr. Lautenbach says: "In the normal dog half a drop of nicotin never produces death, but in dogs whose vena porta has been tied, the author found that trismus and tetanus were produced, and death usually rapidly occurred when but one-fifth drop was injected. In normal frogs an injection of one-tenth drop of nicotin into the general circulation always caused death under similar symptoms to those occurring in mammals. One-twentieth drop always produced marked symptoms but never death. In frogs, however, whose livers had been extirpated, even one-fortieth of a drop produced death." On page 621, 1st column, Prof. Schiff states in regard to nicotin, "1. Introduced into dogs and frogs in more than double the dose which proves fatal in the cellular tissue, but introduced into the intestine, it neither kills nor produces 'alarming' symptoms, no cramps, no convulsions; . . . . 5. A frog, the liver of which has been tied, died when one-thirteenth of a drop is injected into a noose of the intestine; 6. If the liver has been tied, a frog dies after the injection of one-eighteenth of a drop into a lymphatic sac, while a healthy frog will survive such an injection and not exhibit any very characteristic symptoms."

On page 391 our author states that he has found that macerating the liver of an animal with nicotin was sufficient to destroy the fatal properties of the nicotin, while a similar proceeding with the kidney did not have this result. Prof. Schiff says, "9. If the liver of a rabbit, or a large piece of one of a dog, be triturated in a mortar, and four drops of nicotin rapidly mixed with it, the red juice pressed from this through a cloth may be injected into the cellular tissue of a small dog without killing it or producing 'alarming' symptoms; 10. But if for liver the kidneys are substituted, violent poisoning is produced, which is not the case when the juice of the kidney uncombined with nicotin is employed; 11. The effects of these last experiments are still more marked in the frog."

Dr. Lautenbach also agrees with Prof. Schiff in thinking that nicotin contains two poisons, only one of which is fatal and is destroyed by the liver, while the other is not affected by passing through the liver. Our author then states that he has found that hyoscyamia is another poison which is destroyed by the liver, and repeats the same experiments made with nicotin, while Prof. Schiff states that he has found "that hyoscyamia is a poison the effect of which is not only diminished but entirely destroyed in the hepatic circulation." He also has repeated his experiments made with nicotin with the result of proving an entirely analogous effect.

The above extracts will give some idea of the similarity of these two papers, which, it occurs to us, may find its explanation in the fact that Dr. Lautenbach made his experiments in Geneva "assisted by Prof. Schiff."[1]

In view of all this, it could not be otherwise than that Dr. L. intended to give proper credit to Prof. Schiff for prior elucidation of these theories. The only difficulty is the habit of omission which we alluded to in the commencement of this review.

So much for the originality of the ideas contained in this paper. As regards Dr. L.'s mode of demonstration, it certainly may be said to be characterized by great ingenuity. There are, however, a few passages to which we would call attention.

On page 388 he gives a number of theories which, he says, will not explain the symptoms which he has described. Some of them are, self-evidently, inadequate; others, he by no means proves inadequate. For instance, he mentions anæmia as a *possible* (?) cause, and then dismisses it by saying the animal did not have convulsions, and the blood-pressure rises after the ligature; while, on the page before, he states that the rise in blood-pressure is merely transient, and followed by a fall. We think he would find a rise in blood-pressure after the ligation of any large vascular trunk from mere increased resistance to the circulation and irritation of the vaso-motor nerves. "Nor do the symptoms occur when the biliary ducts are ligated; and consequently they cannot be explained on a theory of a retention of the biliary matters in the blood." Ligation of the bile-ducts alone does not prevent elimination of the biliary matters, and Flint (*Amer. Journ. Med. Sci.*, 1862, vol. xliv.) has shown that almost precisely the same symptoms are caused by the retention of cholesterine in the blood.

On page 390 he says: "The word destruction, and not elimination, is employed, because the author found that tying the gall-ducts of the frog did not in the least influence the quantity of the poison necessary to produce death." Our author seems to think that tying the gall-ducts prevents the eliminative action of the hepatic cells and the *formation* of bile, while he forgets that, even if it did, Bernard (*Archives Gén. de Méd.*, 1853, p. 5) has shown that not only the liver, but *all* the glands have the power of modifying and eliminating certain noxious substances. In a paragraph below, on the same page, it is stated that a second dose of nicotin, in the same animal, is much less poisonous than the first; while in the experiment given on the same page, the symptoms following the injection of a second dose of one drop of nicotin into the mesenteric vein of a dog, are made to appear much sooner and more violently than after the first dose. On page 391 the surprising statement is made that there is comparatively no danger in taking tobacco into the stomach. If reference be made to page 291, *Phila. Med. Times*, March 17, there will be seen an account of a nearly fatal case of poisoning from taking tobacco into the stomach; and every one knows that intense and even dangerous prostration may follow the introduction of tobacco into the rectum, where it has access to the portal circulation. On page 393, our author states that he has found that the innocuity of curare, when introduced into the alimentary canal, is due to its non-absorption, while Bernard has proved that curare *is* absorbed from the intestinal tube, and that the absence of toxic effects, when thus administered, is due to its rapid elimination by the kidneys. (*Revue Scientifique*, 1869, Sept. 18, p. 665.) These, probably, are oversights on the part of the author, but they do not tend to strengthen his paper.

---

[1] [Since writing the above, we have received a copy of *L' Imparziale* for Aug. 15, 1877, in which Prof. Hezen, in a letter to the Medico-Physical Society of Florence, alludes to the paper under notice, and says, "the idea undoubtedly is derived from Prof. Schiff."]

2. In the second paper under notice, we have again to allude to the absence of reference to previous investigators. Dr. L. states that he has seen rhythmical contractions occurring in the diaphragm synchronous with the pulse, after destruction of the medulla oblongata, and gives as the cause the conduction of electricity, generated in the heart, through the left phrenic nerve to the diaphragm. Brown-Séquard, nearly twenty years ago (*Journ. de la Phys.*, vol. ii. 1859, p. 115) gave, probably, the correct explanation of what Dr. L. has observed. In 1848 he first showed that not only the diaphragm, but all the muscles of the thorax, trunk, limbs, and face were capable of rhythmical movements, even after being separated from their cerebro-spinal centres by section of their nerves. The diaphragm in particular, he then showed, was comparable to the auricles and ventricles of the heart, for its entire mass could present alternate contractions and relaxations, and these occurring with a perfect rhythm. In 1842, Remak (*Mueller's Archiv*, 1843, p. 182) saw, by the aid of the microscope, rhythmical contractions in muscular fasciculi taken from the diaphragm of the rabbit and pig; and in 1844, in the first edition of his Physiology, Valentin announced that he had seen these contractions in a portion of the diaphragm of a cat. (*Lehrbuch der Physiol*, vol. ii. p. 768.) Brown-Séquard, however, first noticed the rhythmical contractions of the entire diaphragm, and compared it to the contractions which take place in the muscles of organic and animal life at the moment of death, and showed that the same explanation would account for both, viz., the presence of venous blood, and probably the carbonic acid of that blood. He has seen these movements in the diaphragm after division of the phrenicus, decapitation, and destruction of the entire spinal cord in rabbits, guinea-pigs, dogs, and cats. In this he has been confirmed by Vulpian. Brown-Séquard has also seen them after extirpation of the semi-lunar ganglia and the small neighbouring ganglia and plexus. So much for the probable explanation of these facts. As regards our author's theory, even if we assumed it to be correct, it would be nothing new. All physiologists know that every contracting and living muscle generates a galvanic current; and Matteucci, nearly forty years ago, demon-

strated that "when a nerve going to a muscle is put upon another muscle, a contraction takes place in the first one when the second contracts." Dr. L. has not, however, by any method of proof whatever, shown the existence of any galvanic current, or its conduction from the heart to the diaphragm; and it seems improbable that the electricity generated in the heart could be conducted in sufficient quantity through such non-conducting media as the pericardium and "oiled paper" as to cause contraction of the diaphragm. It will require more than the mere statement that this is the cause of these movements before this explanation can be accepted as true, especially as it was shown, twenty years ago, that they could occur after destruction of the phrenic nerves, and all the cerebro-spinal centres. R. M. S.

ART. XXXI.—*Eighth Annual Report of the State Board of Health of Massachusetts*, January, 1877. 8vo. pp. 498. Boston, 1877.

TAKING it for granted that our readers expect, as a matter of course, to find this Report a very important contribution to sanitary science, we can assure them that they are not mistaken. Some of the papers are naturally, and most properly, prompted by the peculiar needs and conditions obtaining in Massachusetts. One or two others, possibly, might be criticized as being founded on insufficient, or inadequate premises. The first-named trait, while of course adding decidedly to the domestic value of the Report, by no means so certainly injures its outside usefulness. For the same conditions, the same evils, tendencies, and problems, which now obtain in the Bay State, are likely to present themselves, if not already demanding attention, in the younger and less thickly settled communities. Fortunate, indeed, will these be, if their governing bodies shall have the good sense and the patriotism to avail themselves of the wisdom and experience which these admirable Reports have placed at the disposal of the whole world.

A very few words in the *General Report*, chronicle an achievement, of itself an ample justification for the existence of the Board. The entire business of slaughtering animals for the markets of Boston, a city of 346,000 inhabitants, has been by law concentrated, and confined in the model abattoir planned and constructed under the direction of this Board in Brighton. At its own request, the power of regulating, supervising, and inspecting this abattoir has been transferred from the State to the City Health Board. We trust the municipal authorities may prove faithful and grateful guardians of the solid benefits secured them by the long and hard work of the State Board. For though at present the abattoir has few enemies and many friends, it was not without hard fighting, against legal opposition, reproach, obloquy, outcries of monopoly and oppression, that the beneficent victory was won.

The systematic examination of the water streams of the State, with a view to ascertaining and preventing their pollution, is here continued. Civil Engineer E. K. Clark and Prof. Wm. R. Nichols have carefully studied the basin of the Nashua River, and the character of its waters at different points, in the manner described in our notice of the seventh Report, in the Journal for October last. Founded upon the labours of these gentlemen, Secretary FOLSOM has prepared an article in three divisions, treating of the *Pollution of Streams*, *the Disposal of Sewage*, and *Drainage and Health*. The beneficent agency of natural causes in restoring the purity of running waters when exposed to light and air is clearly apparent in some part of the course of the Nashua. While fully recognizing the desirableness of preserving entire cleanness in all rivers, the writer believes that at present, and probably for many years, they must be the chief channels for the removal of waste matters. In practice, therefore, he would aim rather at inoffensiveness than at absolute purity. In other words, we should not always expect to make river water in a thickly settled community perfectly safe and wholesome as a beverage, but sometimes be satisfied if its presence and use in other ways be free from harm and annoyance. Whatever may be the case in after years, or now in exceptional places, the natural water-courses of the State must long continue to be the principal carriers of sewage. Regulation and limitation of pollution seem then, in many cases, more profitable than attempts at entire prevention.

The latest experiences in various places, upon the disposal of sewage, are briefly reviewed. It is pretty evident that of the many devices to replace water carriage, Dr. Folsom looks with little hope upon any except irrigation. The availability of this on a large scale, and in all circumstances, is yet to be demonstrated. This system itself, indeed, is rather a modification than a substitute for water carriage. An extremely interesting experiment upon sewage irrigation has been in progress for some years in a suburb of Paris. Little by little the amount of sewage thus used is increasing. With each year, too, the method gains in popularity with both citizens and agriculturalists. As new applicants appear for the irrigation, additional conduits are extended out into the country. The growth of the system is, therefore, a purely natural one. No insanitary results have followed this experiment.

Some of the most striking instances of disease from water contamination which have become known since his last Report are cited by Dr. Folsom as fresh instances of evils flowing from bad or neglected drainage. Practical suggestions as to the connections of house drains with city sewers, and as to the urgent need of a careful inspection of these arrangements in all new houses, are well worth attention.

Mr. E. S. CHESBROUGH, City Engineer of Chicago, has prepared for the Board a thoroughly practical paper upon *Sewerage; Its Advantages and Disadvantages; Construction and Maintenance.* When we read his wise counsels as to how such work should be done, we can only sigh as we think of our own much suffering community, and wonder if ever again wisdom, honesty, and economy shall exist in connection with municipal constructions. If there be any town really desirous to obtain good sewerage, from good motives, the authorities cannot do better than to begin by a careful reading of this essay.

A paper upon the *Sanitary Condition of Lynn*, by J. G. PINKHAM, M.D., affords an example of a kind of investigation which the Board hopes will be made in many other towns. The idea is to obtain a complete sanitary survey of the place, taking into account local peculiarities, of soil, sub-soil, water, climate, and other natural traits, together with such influences as flow from the character, occupation, and habits of its population. It is a first step towards a truly scientific attack upon the death-rate; a reconnoissance by which the active campaign may be directed. The survey given is a very full and complete one. It points out with great clearness many sources of insanitary influences, and indicates methods of relief. The examination includes the nativity and descent of the population; the mortality as affected by race and age; the prevailing diseases; and the comparative healthfulness of different districts. A large map of the city exhibits the deaths from prominent causes, in connection with the height above high water, and above the clay strata underlying the place.

Among the interesting points brought out by this survey, are the active agency of contaminated well water, and the nearness of the clay to the surface, as affecting local prevalence of disease. As illustrating morbific influences of another kind, the general existence of womb complaints among the factory girls is noted as due to their work.

In a paper on *Registration of Deaths and Diseases*, Dr. FOLSOM gives the results derived from circular letters of inquiry sent to physicians and to town-clerks throughout the State. The aim was to discover how exact and trustworthy the death-returns as reported really are. Obviously, the information received was not very agreeable or encouraging. Defects in the law, its non-enforcement, and the incompetency of many persons signing death certificates, are some of the more obvious reasons for existing imperfections and blunders. Among alleged causes of death were noted the following: "Five doctors," "collocinphanton," "billirm fever," "direars," and "artry lung bursted."

Unless we misinterpret some words concerning the registration of prevalent diseases, the attempt in this direction made by the Board during 1875 has not been kept up. Apparently the returns from physicians were too sparse and too irregular to give valuable results.

A very curious and interesting paper upon the *Growth of Children* is contributed by Dr. H. P. BOWDITCH, Professor of Physiology in the Harvard Medical School. The article may be advantageously compared with the statistics of the Provost-Marshal-General's Bureau, noticed in this Journal for October, 1876. The immediate object of the observations here tabulated was the ascertaining of "the rate of growth of the human race under the conditions which Boston presents." Nearly twenty-five thousand pupils of the public and private schools of Boston have been carefully weighed and measured, and the facts classified so as to exhibit the relations of sex, age, parentage, etc. Many very interesting comparisons are displayed, not by figures alone, but by charts where the parallelism or divergence of lines represents very forcibly the agreement or diversity of the vital phenomena. Our readers will, of course, understand that the yearly rate of increase in height or weight for each and every class of children is estimated not from successive measurements of the same individuals, but from simultaneous examination of children of different ages in each category. Not only are the Boston school children compared with each other, but also with some classes of youth in the Old World. To eliminate from the inquiry any possible influence of insufficient food, or insanitary conditions, pupils from the wealthier classes in England are brought into comparison with scholars from a corresponding sphere in this country.

The last-named comparison fully confirms the results reached by Surgeon Baxter in the Report from the Provost-Marshal-General's Bureau, as to the gravity of Americans. For Dr. Baxter's conclusion as to our adult population is supported by Dr. Bowditch's measurements of our children; neither old nor young are gaunt or slender for their height, when contrasted with their British brethren. The Boston measurements do show, however, a slight excess in weight of children of German parentage over American children of the same height. Age for age, however, the natives are the heavier. Inadequate nutriment and unwholesome surroundings would seem, judging from European observations, to diminish stature more than weight, though both are affected in a growing child. Between American and English children of the comfortable classes, the excess of both height and weight is with the former.

The relation of sex to growth presents some facts of great importance. At the age of thirteen or fourteen years the girls in the Boston schools are both taller and heavier than the boys. Before and after this age the relation is reversed. Hence it is manifest that at a period just prior to the epoch named, physical development must be more rapid in the girl than in the boy. Even if the special evolutions attendant on puberty be left out of account, it would seem that this disproportionate increase of bone and muscle should point to a difference in the mental labours expected from the two sexes.

Up to the height of fifty-eight inches, attained at about the age of fourteen years, the boy is proportionately heavier than the girl. Above that point the reverse relation obtains.

Inferences as to the effects of race or of change in climatic conditions cannot very safely be made, from the inferior size of children of Irish descent, as observed in the Boston schools, because of the disturbing influence likely to be exerted by the differing wealth and comfort of the two classes. It seems probable, however, that the superior weight and height of the American pupils is due to the conjoint action of ethnological causes and favourable surroundings.

Some suggestions are appended to this paper to show in what directions researches of this character may be most usefully extended. The effects of geographic and climatic conditions upon the growth of children; the number of generations required to alter the physical traits of descendants from foreign immigrants; the influence of seasons; the comparative influence of city or country life upon development; the effect of diseases upon subsequent growth; the agency of various local sanitary or insanitary conditions in modifying the progress towards maturity: these subjects properly investigated would surely have most important bearings upon national health and prosperity. Dr. Bowditch well suggests that "in the future the hygienist and the educator will recognize, in the physical measurements of growing children, a guide for the application of their sanitary regulations, and a test for the efficiency of their systems of physical training."

The number and variety of tables appended to this article present the observed facts in almost every conceivable relation. Embodying, as the principal ones do, observations upon some twenty-five thousand school children, they furnish a basis broad enough for very important generalizations. Understanding of the facts is also greatly assisted by numerous charts, in which different classes of data are represented by distinctive lines whose relative position and degree of parallelism or divergence exhibit relations more strikingly than do the columns of figures. Unless we are much mistaken this paper will be universally recognized as an extremely valuable contribution to anthropology and to public medicine.

The usual report upon the *Health of Towns*, based upon information received from correspondents, deals more especially this year with diphtheria. Three cities of from 25,000 to 50,000 inhabitants experienced during 1876 very serious epidemics of this disease. Special reports with tables and maps are presented from these places. Lynn had some six hundred cases in a population of thirty-three thousand. The fatality here was about twenty per cent. Soil moisture seemed to invite the disease. Damp weather could not be seen to increase its prevalence. Filthy surroundings were discovered in nearly all cases.

In Salem, slightly less populous, about as many cases are reported, but with a mortality of but twelve per cent. The reporter believes, however, that almost as many more cases of sickness failed to be recorded. The influence of local causes, natural or artificial, in promoting the epidemic, is here much less accounted. While not denying such influence, the writer lays little stress upon it.

In Lowell, the epidemic is characterized as the most fatal ever known. With a population of fifty thousand, the *mortality* from diphtheria is reckoned to be over two hundred, from a probable total of a thousand or twelve hundred cases. Moisture of soil, poor sewerage, and filth are by this reporter assigned a very prominent causative agency.

In the State at large the disease does not seem to have especially prevailed. Its moderate contagiousness seems everywhere recognized. Filth and wet soil are usually named as very favourable to its prevalence.

A very important essay by Secretary FOLSOM, upon *Diseases of the Mind*, has been republished in pamphlet form, and will be found noticed on another page.

B. L. R.

ART. XXXII.—*Transactions of State Medical Societies.*

1. *Transactions of the Illinois State Medical Society*, May, 1876, pp. 271. Chicago, Ill., 1876.
2. *Proceedings of the Connecticut Medical Society*, May, 1877, pp. 180. Hartford, Conn., 1877.
3. *Transactions of the Mississippi State Medical Association*, April, 1877, pp. 180. Granada, Miss., 1877.
4. *Transactions of the Medical Society of West Virginia*, May, 1877, pp. 100. Wheeling, W. Va., 1877.
5. *Transactions of Medical and Chirurgical Faculty of Maryland*, April, 1877, pp. 190. Baltimore, Md., 1877.
6. *Transactions of the Medical Association of Missouri*, April. 1877, pp. 81. St. Louis, Mo., 1877.
7. *Transactions of the State Medical Society of Arkansas*, May, 1877, pp. 53. Little Rock, Ark., 1877.
8. *Transactions of the South Carolina Medical Association*, April, 1877, pp. xxxvi. 94. Charleston, S. C., 1877.
9. *Transactions of the Medical Society of the District of Columbia*, July, 1877, pp. 24. Washington, D. C.

1. IT is a great pity that such a neat looking volume as this of the *Illinois Society* should be so full of typographical errors. Besides many obvious ones, offending simply good taste, there occur sentences perfectly unintelligible, in otherwise well-expressed papers, where we can only conjecture that the printer has murdered the meaning. "Hund pussibus equis," may be laughed at; but it is no joke to have one's meaning rendered utterly unguessable.

A disease is reported as prevailing to some extent epidemically, resembling both scarlatina and measles, but differing from each, protecting from neither, and attacking patients that have before suffered from both. It is imperfectly described, but seems to be mild in its course, and free from unpleasant consequences.

Turpeth mineral, for croup, seems to find many advocates in Illinois. Mercury, in cholera infantum, has also plenty of friends.

Two instructive cases of fatal cerebral disease resulting from aural trouble are reported by Dr. Hotz. No dizziness occurred in either case, though in one the internal ear was completely destroyed. In the second case an acute attack of suppurative otitis was followed by great swelling and tenderness in the course of the internal jugular vein. Phlebitis, with thrombosis of the vein and of the lateral sinus, was diagnosticated. Profound depression of vitality, and "all the signs of a violent pyæmic fever" resulted in death within twenty-four hours after the appearance of the swelling. The lateral sinus near the internal ear contained a grayish-red thrombus, firmly adherent, and traceable into the jugular foramen. The vein "was filled by a dense, firm clot," "brownish, granular;" its inner coat was "very red, and slightly rough." The lining of the tympanic cavity was intensely red. This and the mastoid cells were filled with pus. The cerebral lobe on the diseased side was intensely congested in every part. The meningeal vessels were generally occluded by clots. The minute vessels of the pia mater, and of the superficial portions of brain substance, "were very generally filled with a granular matter." "This embolic condition," we are told, prevailed pretty generally in both cerebral hemispheres. Only the head was allowed to be examined. In explanation of the little disturbance of the cranial circulation until just before death, it is added that the thrombus in the sinus was too slender to seriously diminish its calibre.

Dr. Gunn describes a case where failure to reduce a luxation of the shoulder of eight weeks' standing was found on exploration to be due to the head of the humerus having slipped out through a button-hole slit in the front side of the capsular ligament. Notwithstanding extensive stripping up of the periosteum, a fair use of the limb was regained in six months, with continued improvement.

Among some cases cited to show that hip-disease proceeds directly from local violence, we find one in which castigation from the maternal slipper was the apparent cause.

A curious illustration of the tolerance of severe brain injuries, peculiar to the young, is furnished by a case of Dr. A. C. Rankin's. A child of two years and a half comes into the house and tells his mother that the horse kicked him, while playing in the barn. The symptoms were insignificant, and the wounds apparently trivial. The report is not explicit, but we are disposed to infer from its general tone, that the child was not confined to a sick room at all. We *are* told that after being as well as usual, the child, thirty-two days after the accident, was attacked with severe chills, fever, and convulsions. For ten days these symptoms were treated, and greatly relieved, without any knowledge of the true source of trouble. Then, severe pain at the site of the kick led to an examination, by which fracture with depression was made out, "a little below and in front of the parietal eminence on the right side." Dr. Rankin being then called in, elevated and removed a piece of bone "imbedded in the brain," two and a quarter inches by one-half inch. Pus flowed freely. Cerebral hernia soon appeared, was verified by an aspirator needle, treated by elastic compression, and resulted in recovery, so far as a few months of health may be trusted.

Dr. A. Reeves Jackson combats with considerable force the "ovulation theory of menstruation." He does not believe that the periodical completion of a Græffian vesicle, and the consequent discharge of its ovule, is essential to and causative of menstruation. Menstruation may occur without accompanying ovulation; and ovulation may occur without accompanying menstruation. The writer certainly brings some very cogent objections to the prevailing theories, and shows that many adduced cases do not necessarily afford the support which was expected from them. Apparently a desire to establish a law has oftentimes overridden the desire to ascertain exact facts. One of the propositions in which the writer sums up his views is this: "Ovulation is the irregular, but constant function of the ovaries; while menstruation is the regular, rhythmical function of the uterus."

Dr. L. B. Slater writes upon placenta prævia, and adds forty-seven cases collected through inquiries among his professional brethren, and from his own practice.

Dr. Washburn's Presidential Address is a forcible and eloquent assault upon the weakness and folly of the public, as often shown in their choice and appreciation of professional aid.

Prof. Hollister describes a case of chylous urine. The patient, afflicted with this very rare and interesting malady, was a man of seventy-four years of age. He had become emaciated, somewhat feeble and dyspeptic, and disposed to constipation. Twenty-six ounces of urine were exhibited, passed at different periods during twenty-four hours. Oil globules, granular chyle corpuscles, and minute granules, appeared under the microscope; but no casts, pus, nor blood globules.

2. An interesting subject in the *Connecticut Transactions* is the appearance or increase of malaria, in this and other of the New England States. The Address of the President treats of this matter at considerable length. It seems pretty well established that malarial disease was quite prevalent in the early years of the New England Colonies; that it almost entirely disappeared except in certain quite limited regions—the valleys of two or three rivers—and that during some years

past a tendency to this class of disorders has very much increased in several localities. Some few physicians have thought that the regular typhoid, or enteric fever, has been more or less replaced by the multiform phases of malarial febrile affections. This idea, however, is by no means universally held. But whether typhoid is diminished or not, there is no doubt about the increased frequency of the other type. If we rightly understand the drift of the well written address of Dr. Barrows, he is inclined to admit the change of type in the constitution of men, or of their diseases, as the remote cause of malarial affections reappearing in Connecticut, while, however, fully allowing for the influence of new works, such as dams, grading of streets, etc. Other writers, in this volume, point to such causes as we have last named, as explanation of the acknowledged frequency of the intermittent type in the diseases of the river valleys of Connecticut. However it may be explained, there seems to have been, during a few years past, an extraordinary development of malarial influence, not only, or chiefly, in distinct diseases, but as affecting the course or tendency of all maladies, in many towns along the river valleys.

Dr. Jarvis, of Hartford, reports a case where a pistol bullet entered the cranium just above, and one and a quarter inches in front of, the upper point of the left ear. Brain substance was discharged from the wound. Becoming conscious on the fifth day, paralysis of "sensory and motor nerves of the right side from the mamma down" is recorded, without particulars. Purulent discharge seems to have ceased, and headache and paralysis to have disappeared, within three weeks. The reporter implies, though he does not distinctly state, that complete recovery occurred.

As an encouragement to surgeons with desperate cases, Dr. Wainwright, of Hartford, reports the case of an Irish girl who had both feet crushed by a locomotive. A double amputation was done, on the ground floor of a tenement house, where the rotten flooring boards had broken through into the "damp and unwholesome cellar," in the room opening out of the sick chamber. The stumps, at the junction of the middle and lower thirds of both legs, did as well as could possibly have been desired, notwithstanding that the miscarriage of a six months' illegitimate child immediately followed the operations. The case serves the Dr. as a text for an essay on the influence which artificial limbs as now made ought to exercise in modifying the surgeon's choice of the exact method and locality of an amputation. The old principle, always to save as much of a limb as is possible, should now often yield to mechanical considerations suggested by the maker of artificial legs and arms.

A case of syphilitic hyalitis, as reported by Dr. W. T. Bacon, has some points of interest. Well marked secondary symptoms occurred, some ten years before, during pregnancy. The infant died at the age of four months, after distinct specific symptoms. The inference is, that proper treatment was then used. At all events, for some eight years no syphilitic symptoms appeared. Then the patient discovered that the sight of one eye was nearly gone. One year later, she came to the reporter for treatment. The case was diagnosticated as pure, uncomplicated hyalitis,—regarded as very unusual. Very great improvement, still continuing, with prospect of cure, is reported after some three months' treatment. The long interval of apparent health, and the uncomplicated and undemonstrative character of the final attack, are justly noted as remarkable.

A case of hydrophobia, reported by Dr. Parsons, of Enfield, has some exceptional features. The child began to manifest the first, and most unmistakable, symptoms one year after being bitten. These symptoms were protracted during about fourteen days, although not very decided till two or three days before death. At the time of the attack the dog was still alive and in good health. It was then remembered, however, that a week after biting the child he had appeared poorly for a few days. The fact that the little girl was but three years and three months old at time of death destroys any suspicion of the imagination being the cause of death. The dog was a black-and-tan, and was killed only on the day the child died. The account of the case is almost too dreadful and too pitiful even for professional readers, though simply told and without any rhetorical effort. Nothing can be conceived more horrible than the torments of this little innocent.

Dr. Chamberlain reports a case of protracted suffering and ill-health due to spasmodic stricture of the œsophagus, wholly disconnected with any organic lesion, and yielding to tonic and local treatment. Another case reported is less remarkable, and followed diphtheria.

Partial dislocation of the third cervical vertebra, in a lad of eight years, easily reduced by extension, and followed by no bad symptoms, is reported by Dr. Jewett, of New Haven.

Dr. Burke, of Middletown, describes an infant born without arms. Scapulas and clavicles were perfect, but there was no humerus on either side. The formation was otherwise perfect. At the age of sixteen months the child was amusing itself picking up and handling—so to speak—objects with its toes as easily and naturally as possible.

A paper on the *Pathology of the Pneumogastric*, and one describing sixteen cases of *Puerperal Insanity*, possess considerable interest.

Dr. W. B. Hallock, of the staff of the Connecticut Hospital for the Insane, writes an article advocating the treatment of the insane in detached buildings, containing from thirty to fifty patients. Fearing that our readers may be tired of our repeated condemnations of such plans, we will only say that the present writer presents his arguments in a fair and temperate manner.

3. A prominent feature in the *Mississippi* pamphlet is a truly forcible and eloquent exposition of the uses and possible achievements of State Health Boards. The writer, Superintendent W. M. Compton, of the State Insane Hospital, exhibits with especial power the economical value of the work of a well-conducted board.

President McCormick, treating of the many adverse influences against which the well-educated and competent physician is obliged to contend in the struggle for practice, makes the following palpable hit: to the query whether laws shall be demanded forbidding practice without diplomas, he says, "No!"—not while any young man wholly destitute of culture may exchange his plough or shop for "nine or fifteen months," sojourn "in one of those chartered institutions so thoroughly advertised in the medical and secular prints," and "return with the degree of Doctor of Medicine." He justly deems the requiring of such attainments scarcely worth making a fuss about, and scarcely adequate to elevate their possessors much above the common herd of pretenders and charlatans.

Dr. Hill, of Macon, advocates immediate operation in cases of perineal laceration from labour, and supports his views by four cases, which seem to have been very successful.

In a report upon the surgical history of the State, Dr. W. W. Hall records the removal of the debris of a fœtal skeleton from a lad in whom it had been mistaken for a vesical calculus. The sac containing the bones is said to have been situated between the prostate and the perineum.

4. What has the State of *West Virginia* expended in enlightened effort to preserve and promote the health of its citizens, is a question which President Hildreth both asks and answers. "Salary of vaccine agents, $75," is the reply. Among many intelligent and useful suggestions in this presidential address is one

urging the thorough study of the many mineral waters, which are so important a feature in the local materia medica.

Some much-needed strictures upon the construction and arrangements of the public-school buildings are put forth by Dr. Brock. The stoves in which the bituminous coal is universally burnt in that region are reported to throw out large amounts of gas. Whether as grim joke or ghastly earnest, a female teacher says *she* can always manage restless and refractory boys. She can bear a good deal of heat; and so she fills up the stove, stirs the fire, and soon has "the boys quieted down."

Dr. Hupp and Dr. Frissell both present illustrative cases of reflex nervous disease and irritability, arising from phimosis and from adherent prepuce. Some are remarkably corroborative of the views recently advanced by Dr. Sayre. As a not very infrequent cause of the gravest symptoms, abnormal conditions of the prepuce should hereafter be more closely regarded.

Dr. Lazzell presents numerous facts relating to typhoid fever, including some fifty cases each, in two distinct epidemics, besides scattered cases, which have led him to believe the disease contagious. Usually, but very feebly so, in certain epidemics, especially of a severe type, it becomes quite notably communicable. Single sporadic cases may, he believes, prove a focus of contamination. Here, as we understand, he is not referring to infection from dejecta.

Dr. Camden gives a case curiously illustrative of the long delay that may occur in the full development of the results in brain wounds. A soldier shot in the head recovers in two months and resumes duty. Reported well and active for three years, he then has a "flighty spell," and a "hard spell of sickness." Recovery seems to have soon occurred, followed after some years by spasms, after working in the sun, in 1873. Recurring in 1874, these result in insanity. Early in 1876, the skull was trephined at site of shot-hole. Traces of lead were seen, and one fragment pressing on the dura mater was removed. Somewhat improved at first, he lived with halting speech and staggering gait one year. At the autopsy the buck-shot was traced from the left posterior-superior parietal region, through an abscess in the brain, to a point "two inches in the substance of the brain in the left hemisphere," where it was encysted.

Epilepsy of fourteen years' standing, with however some hysteric symptoms, in a woman of twenty-six years, permanently disappeared after the discovery and treatment of a nearly imperforate hymen and severe uterine ulcerations. Recovery has persisted for ten years. Two healthy children have resulted from her marriage. Dr. McWhorter justly regards this case as a triumph of careful diagnosis. The patient at first absolutely refused to allow a vaginal examination.

One or two other readable papers complete this number.

5. The prominent feature of the *Maryland Transactions* is the Annual Oration by Dr. S. Weir Mitchell, of Philadelphia. With a courageous disregard of possible charges of egotism, the speaker at once assumed that it was his own ideas and his own experience that his hearers desired. Acting upon this assumption, he described with peculiar force and raciness certain difficult cases which had come under his hands, and also gave his views upon the free and bold use of certain important drugs which often are used timidly and therefore ineffectively. In clearness of vision, felicity of illustration, and sharpness of attack upon some of the delusions of the day, we are reminded of the immortal "Autocrat of the Breakfast Table." The points of treatment to which more especial attention was directed, are rest, special diet, and passive or special exercise by electricity, *massage*, or other means capable of strict localization.

The President, Prof. Christopher Johnston, in his Opening Address, treats of what he deems the special needs of the profession in his State. The status of medical men as witnesses, expert and ordinary, are especially noted as needing some legislative rectification.

As reporter upon obstetrics and gynecology, Dr. John Morris directs attention to the not infrequent existence in the female of symptoms and conditions similar to those connected in the male with involuntary emissions and undue sexual excitement. That an actual discharge or emission, under excitement, takes place from the vulvo-vaginal glands is maintained by the writer. That in some cases it is seriously injurious, and needs careful treatment, is here insisted. Dr. Morris believes that many cases of ill-health and mysterious suffering may be traced to this cause. Hemorrhage from coition, the preventive treatment of women known to be subject to severe post-partum bleeding, and the true principles in the management of the perineum during labour, are also here treated.

Dr. W. C. Van Bibber notes the great but unappreciated value of pressure or compression as a therapeutic agent. Inordinate deposit of fat in the legs he has seen removed by the daily use of a roller bandage. A large, chronic abdominal tumour, accompanied with great quantities of pus in the urine, was recovered from, under careful and systematic compression, and the removal of constriction by corsets, higher up. Even abdominal tumours simulating cancerous growths have yielded to gentle but persistent pressure. The diarrhœa of debility has been often relieved by the same means. A more heroic treatment was once successfully employed, "grasping the bowels by a strong hand, and holding them steadily for forty-eight hours." The case was one of persistent diarrhœa in a feeble girl, and which seemed likely to prove fatal. While this last instance seems rather extravagant, we believe the doctor is right in attaching considerable importance to mechanical support and pressure in many medical cases as well as surgical.

The choleate of soda is warmly commended in cases where the biliary secretion does not reach the duodenum in sufficient quantities.

Dr. Theobald favours the use of probes much larger than those commonly used, in treating strictures of the nasal ducts. That the anatomical structure of the parts will admit the sizes advised is shown by observations upon many skulls and cadavers. Nearly thirty cases are reported to show the results of treatment. Probes are believed to be much more effectual than styles; and they should be large, and continued in use until all inflammatory symptoms have passed away. A collyrium of alum-water is often of use, simply placed in the corner of the eye. A scale of sizes suggested for the probes proceeds by quarters of a millimetre, number one being one-quarter, and number sixteen being four millimetres. Twelve to fourteen would be the numbers for ordinary use in the nasal duct itself, 3–3½ millimetres.

Dr. Randolph Winslow reports considerable success with strychnia, used hypodermically, for the urinary incontinence of children. We feel somewhat disposed to indulge here in a little objurgation against the stabbing treatment, of late so fashionable. Not the slightest hint is given of any moral effect thought to be obtained in these particular cases, from the dread of pain; nor is it stated that the injections were specially localized. Why, in Heaven's name, then, were the poor little wretches tormented with needles, needlessly thrust into their tender flesh, when their stomachs were perfectly ready and willing to assimilate the drug? Were Dickens to return from the Shades, and to re-write the immortal characters of Bob Sawyer and Benjamin Allen, he would depict them, we are sure, not dancing around the actors in a free fight, lancets in hand, ready to bleed the first that falls, but with needles whetted and syringes charged, anxious to "*jab*" any victim enough stunned to submit to it. A year or two ago we en-

encountered a contributor to some "Transactions" who had become so depraved, so hopelessly demoralized by daily indulgence in this vicious habit, that he actually invented the verb "*to Hypodermize*."

A somewhat full and careful sketch by Dr. Monmonier of recent progress in anatomy and in pathology, with several shorter papers, completes this interesting number.

6. President Trader, of the *Missouri Association*, is the second writer whom we have noticed, in preparing this article, who quotes the wonderfully prophetic utterance of Dr. Benjamin Rush as to the future of preventive medicine. This remarkable man looked forward to a time when pestilential fevers should be as much under control as the evils of lightning and conflagration, and when courts should punish cities that suffered to exist the cause of disease. The vigorous address before us is an excellent type of an improved order of medical eloquence. Comparatively seldom now do we meet with the "splurge" and "hifalutin" so common a few years ago. Sensible advocacy of definite aims, and forcible statements of real needs, have largely replaced the glittering generalities of the past. Especially does preventive medicine receive a great share of attention.

Dr. Spencer is much impressed with the danger to the sense of hearing which attends many modes of treatment employed for naso-pharyngeal catarrh. Injections, douches, and even atomized fluids, he believes to be very liable to traverse the Eustachian tube, and produce the most serious mischief in the ear.

Dr. G. W. Broome describes a case in which he made subcutaneous section of the femur, at the junction of the neck and the shaft, for the relief of anchylosis following coxalgia. A false joint with a certain amount of motion seems to have been secured. The case is very imperfectly reported; but if we understand rightly the account here given, amputation of the foot, on account of tarsal caries, preceded the subcutaneous operation by about one year, and seems to have been on the other limb.

Dr. Richmond, in a paper upon Surgical Dealings with Sphincter Muscles, shows how the elasticity of important passages has been underrated. Calculi, having a smaller diameter of one and a half inch, have been extracted by the writer, without cutting into the bladder, by dilatation of the sphincter vesicae. Whether or not the entire urethra also was distended to allow the passage of the calculus, we are not told.

A paper upon Cancer of the Larynx, with four original cases, by Dr. Glasgow; three rather extreme cases of Ovariotomy, by Dr. Todd; an article on Syphilitic Phthisis, by Dr. Porter; and a paper upon Summer Complaints of Children, by Dr. Allen, make up this publication.

7. The modest pamphlet of the *Arkansas Society* contains but little matter of special interest to outsiders. No similar organization, however, need feel ashamed of an address like that here presented from President W. B. Welch. Dealing chiefly with the needs of the profession in his own State, and the methods in which, if allowed, they can benefit the body politic, he expresses also a dignified regret at the teachings recently promulgated by a president of the American Medical Association. The rules and customs of the profession are, Dr. Welch believes, not at all too stringent. Improvement, with him, does not lie in the direction of abrogating the existing Code of Ethics. Among the home questions which engage the earnest interest of the President are the establishment of a Board of Health, and the providing of proper care for the indigent insane of the State.

8. The *South Carolina Transactions* are principally composed of a committee report upon State Medicine and Public Hygiene. The writer, Dr. Manning Simons, of Charleston, has evidently a thorough appreciation of the duty and the interest of the State, as conservator of the health of its citizens. His presentation of the achievements possible to an able and authoritative board is quite full, and very well prepared.

In a modest and sensible Presidential Address, Dr. Geddings defends the Code of Ethics against recent attacks made by one whose position should have been surety for better counsels.

Dr. Baruch gives an interesting account of a trial in which the presence of strychnia, given with deadly intent, was sought to be accounted for upon the vulgar theory that the drug ordinarily exists as an ingredient of poor whiskey. Queerly enough, it was not the learned counsel for the defence that urged this popular notion, but the foreman of the jury. The prisoner was actually acquitted upon other grounds, essentially the want of direct evidence connecting him with the crime. But reiterated expressions from the foreman, in the newspapers after the trial, indicated that his firmly held delusion would have alone sufficed to forbid a conviction. Thus the writer shows how important might be the legal consequences of an utterly baseless but widely cherished belief.

9. In the present quarterly issue of the *District of Columbia Society* we find nothing of much general interest except a case of brain disease, supposed to be syphilitic. The patient was a hearty young man of eighteen. Except for occasional paroxysms of agonizing pain in the head, the tendency to which prevented work, the symptoms would not seem to have been severe. Nausea and vomiting usually attended the attacks of pain. He was habitually up and about, with good appetite, though losing flesh. Strabismus and dilatation of pupils are, however, mentioned. There was no impairment of taste or smell nor of articulation. Loss of co-ordinating power is mentioned, very briefly, as causing awkwardness of gait, and fear of falling if he closed his eyes. The pain was always referred to back of head and nape of neck. One night, after taking his evening meal, and mentioning his design to go to church next morning, he awoke with pain, vomiting, and staggering gait, and died in convulsions at 7 A. M.

The autopsy showed no disease of the cerebrum or lateral ventricles. The cerebellum was strongly and generally adherent to the bony walls, "intensely congested." The pons and medulla were "soft and congested." In the fourth ventricle were found four ounces of amber-coloured fluid. The cord was not examined.

Some debate followed, upon the question whether the case was really syphilitic. No previous history of primary or secondary symptoms could be learned, though frequent exposure was confessed. Treatment by iodide and bromide of potassium seemed at first beneficial. A curious trait in the case was the posture sought for relief of intense pain, kneeling, with the head pressed between the knees.

B. L. R.

ART. XXXIII.—*Cyclopædia of the Practice of Medicine.* Edited by DR. H. VON ZIEMSSEN, Professor of Clinical Medicine in Munich, Bavaria. Vol. XV. *Diseases of the Kidney.* By Prof. CARL BARTELS, of Kiel, and Prof. WILHELM EBSTEIN, of Goettingen. Translated by REGINALD SOUTHEY, M.D., Oxon., of London, and ROBERT M. BERTOLET, M.D., of Philadelphia. ALBERT H. BUCK, M.D., New York, Editor of American edition. 8vo. pp. xii., 796. New York: William Wood & Co., 1877.

PROF. BARTELS is probably not so well known to the majority of our readers as many of Dr. Ziemssen's other collaborators, for he does not seem to have been a frequent contributor to the medical periodicals of his own country, and is the author of only one or two brochures; the most important of which is, however, a lecture, one of the Volkmann series, entitled "Clinical Studies on the Chronic Diffuse Inflammations of the Kidney." In the list of his papers given in the preface, will also be found several treating of diseases of the genito-urinary organs, and we learn from the same source that he was selected by Prof. Frerichs, in 1851, to supervise his work on Bright's disease, then in preparation for the press. These facts show that he has paid special attention to this branch of pathology since the beginning of his medical career. Moreover the manner in which he has done his share of the volume, by far the greater and more important part, fully justifies the confidence reposed in him by the editor.

Before speaking of the diffuse diseases of the kidneys in detail, Prof. Bartels devotes one hundred and fifty pages to the description of the general symptoms of renal affections, in the course of which he lays down some excellent rules for the examination of the urine. To render this entirely free from all sources of error, he insists upon the importance of collecting the whole quantity voided in twenty-four hours. In this country it is the universal custom, we believe, to direct our patients to save only the urine which is first passed in the morning, but this is a course which the author says will often lead us into error, as it is precisely this urine which is oftenest free from albumen. The reason for this will appear further on in this notice.

Careful investigation has convinced Prof. Bartels that pathological alterations of the epithelium or of the matrix tissue of the kidneys, are of very secondary importance in the production of albuminuria. It is no such rare event, he says, for kidneys to secrete albuminous urine during life, which yet after death present no trace of histological alterations, either in their (glandular) cells or in their interstitial tissues; while, on the other hand, kidneys which are extensively diseased, whose gland cells and interstitial frameworks exhibit pathological degeneration of the extremest kind, may furnish a urine totally free from albumen. He, therefore, expresses the opinion that the overflow (passage) of serum albumen from the bloodvessels into the renal tubes of the kidneys will in every instance be proportioned either to an existing abnormal increase of blood-pressure, or to an altered state of the walls of the vessels, or to a combination of both these causes acting together.

The frequent occurrence of albuminuria in cases of heart disease in which the kidneys are healthy, its disappearance or diminution under a treatment by which the tension of the vessels is lessened, will be accepted as conclusive evidence that increased blood-pressure is alone sufficient to produce this symptom by many practical physicians who would be disposed, nevertheless, to question the correctness of the author's assertion that "albuminuria in all cases of simple contracted kidney is solely due to increase of blood-pressure in the Malpighian bodies." Still, if we reflect that the amount of albumen in the urine bears no proportion to the extent of degeneration of the secreting cells while it is found to rise and fall under circumstances affecting the blood-pressure, we will find it difficult not to agree with him. The fact has already been referred to, that an examination of the morning urine alone may sometimes lead us to form false conclusions as to the condition of the kidneys, the explanation being simply that during repose the blood-pressure is at a minimum, and hence may not be sufficient to cause the excretion of albumen by the kidneys. Prof. Bartels, in illustration of this point, relates an interesting case in which, it having been found that rest was sufficient to cause the disappearance of the albumen from the urine, the patient was ordered to remain in bed, and in which its subsequent reappearance was sufficient to show that this order had been transgressed. Another very similar case is also fully reported, and also one, in which, although the diagnosis was fully confirmed at the autopsy, no albumen could be detected at any time in the urine. A case has also recently come to the writer's knowledge, in which, notwithstanding the fact that the retinal changes, as revealed by the ophthalmoscope, pointed unmistakably to the existence of cirrhosis of the kidneys, the examination of the urine, although frequently repeated, for a long time gave negative results only.

A form of albuminuria, which has excited a good deal of interest of late is that which occasionally occurs in the course of certain diseases, as, for instance, pneumonia, rheumatism, typhoid fever, and erysipelas, when marked by a very high temperature. Its occurrence under these circumstances is regarded by many observers as an unfavourable symptom, being thought to add gravity to the original attack, and many have not hesitated to found an unfavourable prognosis upon it. The author, however, clearly shows that it is due to the extremely high temperature of the body, and to its long maintenance, be the cause of this fever heat what it may. In other words, the excessive heat of the body acts exactly in the same way as section of the vaso-motor nerves in producing a relaxation of the walls of the bloodvessels. Why albuminuria does not occur in every patient whose temperature rises above 104° F. the author does not attempt, and, we suppose, is unable to explain. This form of albuminuria generally disappears with the fever, being rarely followed by permanent disease of the kidney.

When speaking of the dropsy accompanying renal disease, Prof. Bartels takes occasion to say that "only those forms of kidney disease in which an abnormal diminution of the urinary secretion takes place, give rise to dropsy with any certainty," in this opinion differing from Dickinson and others, who place great reliance upon the persistence of dropsy, with an undiminished or even increased secretion of urine, as a sign of amyloid degeneration. Our experience would also lead us to form a different conclusion from his in regard to the relative amounts of urine passed in cirrhosis and amyloid degeneration of the kidneys. Unquestionably the urine is frequently very much increased in the former, but we believe not so much so as it often is in the latter, and this opinion is also held by the author already referred to, and by Grainger-Stewart. In what we have said we do not, however, mean to deny the possibility of its frequent diminution in this disease, especially towards the close of life.

The author holds that the urinary casts originate in one or other of three ways. They are formed: 1. By a degeneration of the renal epithelium and a smelting down of these cells into a homogeneous mass; 2. By a species of secretion from the epithelium; 3. By a coagulation of the albumen or its derivatives excreted with the urine. A good deal of space is given to the discussion of different theories of uræmia, at the close of which the author says: "I only consider this much established, that the symptoms are all caused by some disorder of the urinary secretion, and that the title of uræmia is rightly attached to them," a very safe conclusion, from which no one, we venture to say, will dissent, and which shows how little is really known on this subject.

Prof. Bartels proposes a classification of the diseases originally grouped together under the head of Bright's disease, which does not differ from that recommended by other recent writers on diseases of the kidneys, and includes, of course, 1. Parenchymatous inflammation of the kidney, both acute and chronic; 2. Interstitial inflammation or connective tissue induration of the kidney; 3. Amyloid degeneration of the kidney. Had we not noticed at such length the earlier part of the volume, we should attempt to lay before our readers a brief analysis of our author's excellent chapters on these diseases, but the space at our command is only sufficient for a few remarks as to his views of treatment. In the first place he regards rest as of the utmost importance, not merely in the treatment of the acute form of parenchymatous nephritis, where the swollen condition of the body will generally prevent locomotion, but also in its chronic form whenever the character of the urine shows that the process of inflammation still continues in the kidneys as long, consequently, as albumen is contained in this excretion in large quantities. "I have confined them" [the patients], he says, "to bed for very long periods, and only suffered them to leave it in hot days in summer." It is questionable, however, whether this treatment may not, in some cases, do harm by diminishing the strength of the patient which it is so necessary to maintain.

But it is not only in these two forms of renal disease that he counsels the employment of this remedial agent. In cirrhosis, also, he teaches that the first and foremost hygienic prescription should be rest in bed and the avoidance of all exertion and excitement in the pursuit of business. This is a plan of treatment which, while it would, no doubt, diminish the amount of albumen in the urine, would meet with great opposition from the patients, and we cannot see either that he has succeeded in proving that it would have the effect of arresting the degenerative changes in the kidneys. In the acute form of inflammation he appears to rely almost wholly upon diaphoretics, especially upon the hot-air bath, unless uræmic symptoms supervene, when he recommends the use of drastic purges, and in some cases of venesection. In cirrhosis, he gives iodide of potassium in solution to the extent of twenty to thirty grains daily, and continues the use of this salt for an indefinite period. He does this because he believes the iodide has the property of reducing "hyperplastic connective tissue growth." He has never seen any prejudicial results from its long continued use.

In amyloid degeneration of the kidney the treatment must, of course, vary with the nature of the cause. As this is often syphilis, some benefit may be expected also here from the administration of the iodide, but the author believes that we oftener have the power of preventing the disease when depending upon this cause, than of relieving it when once actually set up, and he, therefore, attaches great importance to the necessity of continuing the treatment of syphilis by mercury long after all active symptoms of the taint have disappeared.

To Prof. Ebstein has been committed the task of describing the diseases of the pelves of the kidneys and the ureters, together with those diseases of the kidneys proper not included by Prof. Bartels, under the head of Diffuse Diseases of the Kidneys. We have only time to say that we have read this part of the volume with interest, and that the only fault we have to find with it is, that it contains an article on amyloid degeneration of the kidney, which, as this condition has been fully treated of by Prof. Bartels, is unnecessary.

We will only add in conclusion, that the American editor has been fortunate in securing the services of Drs. Reginald Southey and Bertolet as translators.

J. H. H.

ART. XXXIV.—*Disease of the Mind. Notes on the Early Management, European and American Progress, Modern Methods, etc., in the Treatment of Insanity, with especial reference to the needs of Massachusetts and the United States.* By CHARLES F. FOLSOM, M.D., Secretary of the Massachusetts Board of Health. 8vo., pp. 109. Boston: A. Williams & Co., 1877.

THIS is a separate publication of a paper contributed to the annual report of the Massachusetts State Board of Health, of which Dr. Folsom is the Secretary. It is a brief, and, within such narrow limits, necessarily imperfect summary of the progress of this department of the healing art during the present century, both in this country and abroad. He takes occasion to compare our hospitals for the insane, especially with those of Great Britain, and this, no doubt, was the *raison d'être* of the paper, for he has recently visited that country, and has been very favourably impressed by some novelties in their management of the insane. As the testimony of a highly intelligent observer, with some practical knowledge of the subject on which he writes—a qualification not possessed by all those worthy people who have recently undertaken to teach the public exactly how the insane should be cared for—it is entitled to most respectful consideration. Lack of space will oblige us to confine our notice to a few only of the prominent points.

Dr. Folsom thinks that, during the twenty years immediately preceding 1856, our institutions were in advance of all others, but that since then this relation has been reversed. The elements of superiority are so numerous and diverse, that we cannot see how such a sweeping comparison can be made with any reliable degree of exactness. In architectural construction, fitness of site, internal arrangements, amusements, employment, diet, medication, scientific study, in all these things our institutions present different degrees of excellence, and the same may be said of those of foreign countries. The only sure test of comparative excellence would be that of results, those being best which accomplish in the highest degree their allotted work—the cure, comfort, and custody of the insane. When we become able to apply this test, then we may easily settle the question of precedence, and, we apprehend, not till then. The Dr., however, brings forward two particular points of management in which the British institutions are in advance of ours, their almost if not entire disuse of restraint on the limbs, and the larger liberty allowed to the patients, as indicated by unlocked doors and unguarded windows. Not that he is in favour of unconditional non-restraint, but that, as a general rule, we use more than is necessary. Even if this were true in regard to one or two hospitals of which he had some personal knowledge, it is mere assumption to say that every other in the country is equally blamable, the fact being, we have reason to believe, that some of them actually use less restraint than some British hospitals use.

Dr. F.'s remarks on the subject of restraint are vitiated by the common fault of mistaking a means for the end. Restraint is represented by English writers as an unmitigated evil, the utter disuse of which is the aim, end, and glory of all good hospital management. Even here, where more sensible notions prevail, it is often made a matter of boasting in our hospital reports that restraint has been reduced to an insignificant amount, and the fact put forth as an indisputable proof of progress. Had the Doctor relied more on his own good sense and judgment, and less on the dogmatism of foreign alienists, he would not have lost sight of the principle that mechanical, as well as other forms of restraint, such as the hands of attendants, duck shirts, locked clothes, and seclusion, is a strictly remedial measure, the value of which must be determined by the results. Nothing better shows how little wisdom has entered into this dispute, than the fact that the use of restraint at all is almost universally regarded as an unquestionable evil, and this in the face of the facts that not unfrequently patients ask for it, that in cases of high excitement its tranquillizing effect is often immediately obvious, and that seldom if ever do we hear any complaint of its use from those who have fully recovered. Let us say then for the thousandth time, that the question is not whether the ordinary routine of hospital management may be pursued without using restraint. Nobody denies this fact. We know very well that hospitals thus conducted "get along," as the phrase is. If it were concluded to abstain from opium, conium, iron, quinia, or chloral, unquestionably they would still "get along." Indeed, the practitioners of homœopathy in one of their hospital reports (State Homœopathic Asylum for the Insane, at Middletown, N. Y., January, 1877), state as a "cardinal feature" of their treatment, "an entire avoidance of any of the forms of anodyne, sedative, or palliative treatment," and they too "get along." They also tell us in the same document that, the whole number of female patients during the year being 110, if we do not mistake their statistics, the number of vaginal examinations was over a thousand; and still they got along. If getting along be the test of what is right and proper, then we are bound to follow these precious examples. The true question involved in this dispute about restraint is, Whether it does or does not promote the ends of hospital treatment in a very considerable degree? whether it can be disused entirely without most serious detriment? Like every other means resorted to, it must be judged by its fruits, and, that too, in a strictly scientific spirit.

Thus the question stands. In all the American hospitals mechanical restraint on the limbs is more or less used as a means better than any other for effecting a required purpose. The same may be said of some of the British hospitals, while in far the greater number it is utterly disused, either because it is regarded as always and necessarily bad, or because the little good that can be claimed for it is supposed to be more than balanced by its evils. Further trial and inquiry may accomplish some nearer approach to uniformity of practice, especially if pursued unbiased by a senseless sentimentalism on the part of the public.

In another respect Dr. Folsom thinks we have been surpassed in the progress of improvement, viz., in the greater amount of liberty witnessed abroad, in the absence of guards on the windows, and of locks on the doors, in open fires, etc. He mentions two or three establishments only as examples of this new step, from which we are led to infer that they are exceptions to a very different general rule. If there is any merit in this kind of freedom, they must share the claim to it with some of our oldest institutions. Dr. Woodward, of Worcester, was in the habit, during his long service, of giving to every patient, who promised not to abuse the privilege, the freedom of the house and grounds. The same may be said of Dr. Rockwell, of Vermont. That these gentlemen were not much daunted by any fear of consequences in dispensing so much liberty to their patients, was a fact strongly impressed on the visitor who saw from the windows of the Worcester Hospital four men, who had committed homicide, mowing side by side in the meadow; and on the good people of Brattleboro who were accustomed to see a long file of men from the hospital, with axes on their shoulders, wending their way to the woods to cut down the next winter's fuel. We might mention other hospitals where great freedom of movement was allowed, and indeed, in the most, if not all of them, thirty or forty years ago, it prevailed to a far greater extent than it did in any other country. If the later generation of superintendents have considerably curtailed this kind of liberty, it is, no doubt, from a well-founded conviction that it did more harm than good. It certainly has had a fair trial here, no less satisfactory because unaccompanied by any flourish of trumpets. That the result abroad will be the same as it has been here we do not doubt. Indeed, we have never been able to see how the kind of freedom so much boasted of can greatly alleviate the lot of people who have been torn from their homes, deprived of social and legal privileges, and subjected to an enforced system of diet, medication, and discipline. It has been the great misfortune of hospital management that it furnishes so much opportunity for appealing to the sense of the marvellous, and challenging the applause of that numerous class whose only test of merit is strangeness and novelty. To leave this fact out of the account while sitting in judgment on alleged improvements, will, very likely, lead to a wrong conclusion.

Among the multitudinous mistakes in matters of fact, which have pervaded English representations respecting our labours in this branch of our art, is one we hardly expected to see reproduced by Dr. Folsom. He mentions it as one of the advantages possessed by the English and Scotch over us, that "the British Medico-Psychological Association, including in its ranks physicians interested in mental disease, whether superintendents of asylums or not, in their yearly meetings bring out a broader view of the field than if participated in by superintendents alone." From which the reader would infer that the similar Association in this country is a sort of close corporation in which no one is allowed to open his mouth but superintendents. Had he run his eye over the annual proceedings of the "North American Association," he would have found that the meetings have been attended by various descriptions of persons — assistant physicians of hospitals, chaplains, and directors of the same, officers of prison discipline societies, members of boards of State charities—who were invited to participate in the discussions, which invitation was frequently accepted. We can assure the Doctor that whenever he chooses to attend he will find that the Association will gladly listen to whatever he may wish to say. While on this point, we cannot help regretting that in a paper like this, written expressly for the purpose of showing the progress of improvement, the Doctor has made so little account of this American Association. If we have achieved anything in this field of professional labour, whether in the line of medical science, architectural arrangements, or an inventive philanthropy, it is due, in a great measure, to the influence of this Association. The conclusions it has put forth in regard to plans of building, to the systems of warming and ventilation, to the site, surroundings, and size of hospitals, to the organization and discipline of their officers, to legislation and jurisprudence in relation to the insane, and various other subjects, have been of incalculable benefit, obvious enough when we consider the circumstances under which this great enterprise of caring for the insane has been carried forward in this country. To the spirit and practice which it has established by precept and example, we owe the fact that every hospital that public or private beneficence has created one after another, even in regions scarcely known to civilized man, when it began its meetings, has started fully equipped with the physical and moral appliances suggested by the matured thought and experience of the time. Every year, with a single exception, it has met since 1844, always in the neighbourhood of some hospital which it visited and examined. The time occupied by the sessions, extending usually to the fourth or fifth day, has been employed chiefly in reading and discussing papers, in debates on matters germane to the occasion, and in informal interchange of thought. Surely it might justly have received some small allowance of that praise which our author has bestowed on the British Association, which comes together in the morning, hears an address from the President, listens to a paper or two, which is briefly discussed, eats a dinner, and then adjourns *sine die*.

Another advantage attributed to British institutions for the insane, paramount to all others, in Dr. F.'s opinion, judging from the manner in which he presents it, he discovers in their "Lunacy Commission." This opinion he entertains in common with many, if not most, English writers on the subject, and also with sundry amateurs on this side the water, who, probably, would need little urging to fill the office if offered them. This they hold out as the great panacea for all the ills and evils of hospital management. The idea is that superintendents are apt to keep running in old ruts, blind to all signs of progress, and winking at improprieties, and that directors are dull, careless, moved by selfish purposes, and hood-winked by the officers of the hospital. To meet this condition of things, a commission should be appointed by the government with power to inspect the hospitals, advise changes and improvements, and report merits and defects. In England such a board, composed of twelve members appointed by the Crown, visit by sub-committees every establishment, public and private, in which insane persons are cared for, and render an annual report of their doings. Their function is strictly advisory, but the advice generally has all the force of an authoritative order. Lunacy commissions seem to be just now a sort of fashion. If one has done so much good, then, of course, it would be well to have a few more. So the London *Lancet* appoints one for itself, and sends him forth to examine the hospitals and asylums of the land, and the result of his researches has just appeared in the shape of two portly octavos. Other medical journals, we suppose, will not quietly submit to be outdone in this kind of enterprise, and, indeed, we see no reason why other journals, not medical—the Quarterly and Edinburgh Reviews, the Spectator, Athenæum, etc.—should not take a hand in this new method of promoting the public good. We have little faith in lunacy commissions, for though we would not say that the English and Scotch boards have been utterly unproductive of good, we believe it has been accompanied by no small amount of evil. But we are not going to argue the matter. If any one deliberately believes that a body of men—lawyers, merchants, country squires, and one or two doctors—most of whom, probably, were never inside of a hospital before their appointment, become competent to give advice in matters of construction, classification, and treatment, to correct shortcomings, to indicate mistakes, and suggest improvements, and all this too on the strength of one or two visits to the institutions in the course of the year, he is beyond the reach of any argument that we can use.

Some other points in the paper are suggestive of comment, but as they are of minor importance, and as we may already have trespassed on the reader's patience, we will pass them by for the present. I. R.

ART. XXXV.—*Lectures on the Diseases of the Nervous System.* Delivered at La Salpetrière, by J. M. CHARCOT, Professor to the Faculty of Medicine of Paris, etc. etc. Translated by GEORGE SEIGERSON, M.D., M.Ch. London: The New Sydenham Society, 1877, pp. 325.

ALTHOUGH the English translation of these lectures has just come to us, it is of the second French edition, and already in this country we had become more or less familiar with the work from the extensive way in which it had been quoted in our own language. For example, in the last edition of Hammond on *Diseases of the Nervous System*, published in 1876, in the chapters on hysteria, these lectures are largely quoted, and the striking wood-cuts illustrating the contortions of hystero-epilepsy are reproduced from this volume.

The lectures were delivered during a period of several years, and the second

French edition has been materially enlarged from the original, and enriched by numerous notes by Dr. Bourneville, the editor.

The work is divided into three parts. The first relates to "disorders of nutrition consequent on lesions of the brain and spinal cord." Part second embraces paralysis agitans, and disseminated sclerosis; and the third part treats of hysteria and hystero-epilepsy.

The first lectures are taken up with the consideration of lesions arising from nerve injuries, and in this connection the investigations of Drs. Mitchell, Morehouse, and Keen are referred to frequently. There is much that is interesting in the various lesions met with in the skin, muscles, and joints, as results of wounds and inflammation of nerves. We are all familiar with the herpetic eruptions in certain neuralgias, for instance in herpes zoster; but as well as this there are eczematous, leprous, and pemphigoid eruptions, and the "glossy skin," which arise from nerve injuries. Now, Prof. Charcot points out that these trophic disorders, following injuries, are the result of nerve irritation, and he states as a law, that lesions consisting in "clean and complete section" are followed by effects, generally speaking, resulting from the absence of nerve-action. On the other hand, when, "owing to contused or lacerated wounds, the lesion is of such a nature as to set up irritation in the nerve, in which case, and then only, we see arise trophical troubles." This explains how it is that, in cases of division of a nerve by the surgeon's knife, we seldom, if ever, see skin lesions following; while in the case of an accidental wound, which has apparently totally severed a nerve and destroyed its function as to motion and sensation as completely as in the other case, are seen the most extreme trophic changes in the skin.

One section is given to the consideration of bedsores, or *decubitis acutus* and *chronicus*. These, when occurring in cases of paralysis, are shown not to be the result of pressure or the irritating contact of urine, as so commonly supposed, but are due to "irritation of certain regions of the encephalon," in hemiplegia, or to irritation of the spinal cord in paraplegia; although, in the latter case, pressure exerts an important influence.

The section on arthropathies of spinal origin is of particular interest, because Prof. Charcot was an original worker in this field; and he gives to an American physician, Prof. J. K. Mitchell, the credit of having first pointed out these joint diseases in connection with spinal paralysis. The author gives a striking example of atrophy of the head of the humerus, in a case of locomotor ataxia, where, in the short space of three months, the articulating portion of the bone had almost entirely disappeared.

The lectures on paralysis agitans and disseminated sclerosis are admirable, and give the most graphic description of the two diseases that we have ever seen. In the account of disseminated sclerosis, every symptom is brought out with clearness, and the author dwells at length on the pathological anatomy of the affection; indeed, in order to make this the more readily understood, the histological anatomy of the nervous centres, especially of the spinal cord, is given. A study of the neuroglia, so important in its connection with sclerotic affections, occupies several pages.

As Prof. Charcot remarks, in the lecture on the symptomatology of disseminated sclerosis, "it is singular that a morbid state which possesses so distinct and so striking an anatomical substratum, and which, in short, is not a rare disease, should have escaped clinical analysis for such a length of time." No doubt, the circumstance of certain points of resemblance to paralysis agitans has caused it to be confounded with that disease; and many cases which have been called paralysis agitans have in reality been instances of disseminated sclerosis. No confusion need ever be made between the two affections if one would remember that in one, paralysis agitans, the tremor occurs when the patient is at rest; while, in the other, it takes place only on voluntary effort.

The occurrence of apoplectiform seizures in the course of the cerebral form of disseminated sclerosis is a notable feature in the disorder, and, according to the author, is met with in about a fifth of the cases.

The lectures on hysteria relate to hysterical ischuria, hysterical hemianaesthesia, ovarian hysteria, and hystero-epilepsy.

This portion of the work is particularly worthy of study when we consider the attention given by Prof. Charcot to this class of cases. It was he who first pointed out that, in cases of hysterical contracture of long standing, a sclerotic change may occur in the lateral columns of the spinal cord, which renders the prognosis hopeless as to return of power in the affected limbs. A case is related on page 295, in which a sclerous lesion was found occupying the lateral column throughout nearly the entire length of the cord.

Hystero-epilepsy, we are told, may be manifested in three varieties. First. Where epilepsy is the primary disease, and hysteria becomes grafted upon it. Secondly. Where epilepsy is superadded to hysteria. Thirdly. Where convulsive hysteria coexists with minor epilepsy, or where convulsive epilepsy occurs in conjunction with some of the phenomena of non-convulsive hysteria.

It is the second form which the author discusses, and his remarks go to show that it is distinct from true epilepsy.

What strikes us forcibly in reading these lectures is the absence of any consideration of the treatment of the diseases which are brought before us. In only two instances is the treatment alluded to; in connection with paralysis agitans, and in reference to compression of the ovary in hysterical convulsions. This method Charcot was led to adopt, because he had found that he could excite hysterical manifestations by ovarian pressure. One cannot but question, however, whether the same amount of pressure (that of the fist with all the strength of the operator is what is recommended by the author) would not cut short the paroxysm if applied in any region of the body.

The translation is well done by Dr. Seigerson; and his notes show how thoroughly acquainted with the subject he is.

The ten plates appended to the French edition have been omitted, but the woodcuts which illustrate the various forms of hysteria are well executed. W. S.

ART. XXXVI.—*An Atlas of Topographical Anatomy after Plane Sections of Frozen Bodies.* By WILHELM BRAUNE, Prof. Anat. Univ. Leipzig. Translated by EDWARD BELLAMY, F.R.C.S. With 31 plates and 46 wood-cuts. 4to. pp. xii., 200. Philadelphia: Lindsay & Blakiston, 1877.

THE more or less similar works of Pirogoff, Legendre, Volz, Rüdinger, etc., are somewhat rarely seen in this country, and are so useless to many for want of a translation, that we think Mr. Bellamy has done a real service to English-reading medical men by his translation of Braune's Anatomy. The original edition was of life-size and coloured, and though, on some accounts, more valuable, yet was too cumbersome and too costly for frequent or general use. Accordingly, the author issued in 1874 a smaller work, in which the plates were reproduced of half size, by means of photography, without colours. A few plates were omitted, and the text slightly altered. This is the edition which Mr. Bellamy has translated. The sections are sagittal (vertical antero-posteriorly), frontal (vertical from side to side), and transverse (horizontal). There are three sagittal sections of the entire body in the median line, one of a man and two of women (one in the second and one in the ninth month of pregnancy); all three of whom hanged themselves, and one similar section of the abdomen and pelvis of a woman who died from drink in uncompleted labour; one frontal section of the chest, and one of the abdomen and pelvis (pl. xviii., the table of contents calls this, erroneously, a "transverse" section); ten transverse sections of the trunk at different levels, and the remainder are various sections of the head, neck, and extremities. The wood-cuts are largely reproductions from Pirogoff and Legendre, but add greatly to the value and elucidation of the text. The greatest possible care seems to have been taken in preparing the sections. The vessels were filled, the eye carefully injected, the body frozen, the sections made by a fine saw, used as a "cross-cut saw" on marked lines, to get them, as nearly as might be, exactly symmetrical. They are extremely useful and instructive. The physician will learn much, especially in the anatomy of the thorax and abdomen, to guide him in diagnosis, and the surgeon in tracing the course of a ball or knife, or in any operation. The text is excellent, not so diffuse as to be wearisome with its details, yet not so meagre as to be useless from neglect of them. Moreover, the author has added to our knowledge by his investigation of collateral points—as, for example, by his experiments on the maximum capacity of the synovial capsule of the knee (pp. 153–4) and the shoulder (p. 177). We commend the book most heartily to the profession, and especially to those who, at a distance from the opportunities for refreshing their anatomical knowledge, are apt to grow "rusty." It may save them from many an unfortunate blunder.

The translator, also, has done his work excellently. It is no little praise to say that one is almost never reminded that he is reading a translation. This is in such refreshing contrast to some of our recent translations that it is all the more welcome. The author must be held responsible, we presume, for such a curious collocation as this on the first page: "A thin slice of the cerebellum was removed by means of a razor, and the entire course of the aquæductus Sylvii exposed down to the fourth ventricle, *with* the penile portion of the urethra and the anus where not opened in the middle line." And again in the text of pl. vi. he says the section has passed "through the acromio-clavicular articulation"—an obvious error in description, as (pl. xvii.) "cap. femoris dextr*um*" is in Latin, since he means the "head of the right femur," and not the "right head of the femur." We must, however, hold the translator responsible for such an awkward phrase as "a body affected with well-marked anomalies *in as regards* the position of the uterus" (p. 27); or "the optic nerve is .16 *nearer* the middle line *from* (than) the posterior pole of the axis of the globe" (p. 41). In so good a translation it can only be by inadvertence that we read of "*lying* the body on its back" (p. 37); "the *arrangement* of the muscles of the nape of the neck *were* very difficult of definition" (p. 49); and "the vocal *cords*, with the ventricle of Morgagni, *is* clearly shown (p. 54). Plates vi. and viii. have been bound upside down (at least in our copy), producing a mechanical difficulty when we desire to compare them with pl. vii. and others, as we must mentally rotate the body half way round. We simply name these insignificant blemishes that they may be corrected in subsequent editions, which no doubt will be demanded.

W. W. K.

ART. XXXVII.—*How to Use the Ophthalmoscope. Being Elementary Instructions in Ophthalmoscopy, arranged for the Use of Students.* By EDGAR A. BROWNE, Surgeon to the Liverpool Eye and Ear Infirmary, etc. 12mo., pp. 120. Philadelphia: Henry C. Lea, 1877.

THE publication of this little work is one of many evidences of a growing desire on the part of the profession to master the elements of Ophthalmoscopy, and when a practitioner or student is thrown entirely on his own resources for acquiring this knowledge, he may profitably use the manual before us. We need hardly add that the same sort of elementary instruction is now given *viva voce* by the instructors in ophthalmoscopy at every well-organized medical school in the country, and that this, combined with the clinical opportunities for the use of the instrument, and the present aid of the teacher in acquiring the knack of using it, afford all students within reach of such opportunities a shorter and easier road to a knowledge of the subject.

The first section of the book is devoted to the optical principles necessary to be known by all who attempt to use the instrument; and it is so lucid and well arranged that no one can fail readily to master its contents. The three remaining sections are devoted to a description of the ophthalmoscope and the mode of using it, and to the appearances of the interior of the eye in health and disease. These chapters are not so satisfactory as the one on optics. The author, in his preface, has clearly pointed out the advantages which diagrams present over more finished pictures for the ready teaching of students, and in his anxiety to make his text equally clear and distinct has so far departed from the somewhat complicated picture presented us by nature as to make his descriptions, in some places, almost as diagrammatic as his drawings. Thus, at p. 73, we find the statement that "the pivot or turning-point around which the eye rotates, coincides with the posterior pole of the lens;" while, in reality, in emmetropic eyes, the turning-point lies about 6 mm. behind the posterior pole of the lens, and in the elongated myopic eye still further behind it. At p. 76 we are told that, in the "soft cataract of early life, and in traumatic cataract, with the mirror the fundus appears blurred, as if seen through tobacco smoke or a diffused milkiness;" while, in reality, this is only true of incomplete cataract; when it is fully formed the opacity is so dense and complete as to shut out any view of the fundus whatever.

At p. 83 we find that "in myopia a clear image of the fundus cannot be obtained by the naked eye at a few inches. Withdraw your head some distance (say eighteen or twenty inches), and you will perceive the disk and vessels come more or less clearly into view. On moving your head slightly from side to side you will observe the image move in the *opposite* direction—it is an inverted image." While this statement is entirely true of high degrees of myopia, we can imagine the perplexity of a student in sitting down before a patient with a myopia of $\frac{1}{18}$ or $\frac{1}{20}$, and in obedience to these directions, looking for the inverted image.

Let us hope that in any future edition the author will correct these and similar errors which mar an otherwise useful manual, and render the steep and rugged pathway up the hill of knowledge all the more slippery and dangerous to the inexperienced climber. W. F. N.

ART. XXXVIII.—*Gout; Its Cause, Nature, and Treatment, with Directions for the Regulation of the Diet.* By JOHN PARKIN, F.R.C.P. (E.), F.R.C.S., etc. etc. Second ed., 16mo., pp. 144. Hardwicke and Bogue, London, 1877.

THE first edition of this work was published in 1841. Although we have been unable to lay hand upon it, we have good reason to infer that the views stated were the same as are here set forth. When we inform our readers that the chief practical and original point in both editions is the treatment of gout by carbonic acid, administered by the stomach as aerated waters and effervescent draughts, they will scarcely expect a very full analysis of the author's labours. The present unsatisfactory state of the medical treatment of this disease, after Dr. Parkin's ideas have been thirty-five years published, and, by his own account, acted upon without due credit by distinguished writers and practitioners, is of itself proof that he had not discovered the specific for gout.

As far as originality goes, however, we must also extend credit to the theory of the disease, as well as to its treatment. While fully convinced that gout is due to some peccant humour in the blood, Dr. Parkin denies that uric acid or its compounds constitute this harmful intruder. This excretion is doubtless present, but not causative. After a good deal of wholly unnecessary argument to prove that foreign substances and excessive impurities in the blood, may and do give rise to constitutional disturbance and local inflammation, the hypothesis is confidently offered that the somewhat mysterious and intangible poison known as malaria, is the guilty cause of gout. Diversities of climate, especially as to temperature, are thought to determine in part the appearance of gout, or of disease usually called malarial. Various analogies and points of resemblance are quite ingeniously stated. The argument would be more valuable if malaria were more definite.

In a chapter on the pathology of gout, or its physiology, as the writer prefers to call it, as dealing with living functions, he continues to exhibit at some length the similarity between the shifting phenomena of the disease and the action of other blood-poisons. Some of the reasoning employed seems alike unneeded and inconclusive.

Proceeding to deal with treatment, the author, after exhibiting the varied and not very satisfactory therapeutics of the past, proposes as a specific carbonic acid gas. How he first discovered the remedial power of this agent we are not told. How it acts he cannot tell, but believes that it meets, neutralizes, and renders inert the special poison, malarial or other, which causes the disease. He claims that paroxysms are shortened, and that especially their recurrence is delayed, or prevented for years.

Considering that mineral waters and neutral salts have been so very generally employed for gouty subjects, before as well as since 1841, we think the author's case is not a very strong one when he accuses others of using his treatment and giving no credit. He asserts, however, that some physicians acquired a reputation upon the use of his method alone. Dr. Garrod, while using aerated waters, though in conjunction with other remedies, makes no mention even of Dr. Parkin's name. Certainly it would seem as if the writer of an elaborate treatise on the disease, might very properly mention, while advising effervescent draughts, that a brother author attributed virtue to the gaseous rather than the mineral ingredients.

In some remarks upon diet, our author contradicts Dr. Garrod pretty sharply upon the effects of beer as regards gout, the former believing it to be innocent of any agency in producing the disease. B. L. R.

ART. XXXIX.—*Medicine and Surgery in Canton. Report of the Medical Missionary Society's Hospital in Canton, China, for the year* 1876. By FLEMMING CARROW, M.D., Surgeon in charge. 12mo. pp. 24. Hongkong, 1877.

IN answer to an interrogatory letter sent last spring to Dr. Happer, of Canton, and referred to Dr. Carrow, who has kindly answered it: we have been put in possession of many facts in reference to the medical work which is steadily progressing in China, that will be of interest in our own land.

We take the Canton Hospital as our exemplar of what Western medicine and surgery have been, and are doing to break down the prejudices of the Chinese, because this institution has been long established, and has, since 1866, occupied a building owned by, and erected upon, land belonging to the Society. The grounds of the hospital are upon the river bank, having a frontage of 82 feet, and running back 420 feet, and were selected with reference to proper drainage and other hygienic advantages. The buildings are in Chinese style, and the whole establishment very inexpensive when compared with the cost of our own institutions. The hospital is sustained by American and English merchants resident in China, and by Chinese merchants, government officials, compradores, etc. The Society which gives its name to the institution, and has been in existence thirty-eight years, provides the surgeon in charge, and pays his salary. The president of this body is Dr. Thomas R. College, of England, who, fifty years ago (1827), when Physician to the East India Company, opened an eye infirmary at Macao, where, in the course of five years, he treated 6000 cases; and the senior vice-president is our own well-known countryman, Dr. Peter Parker, who, in 1835, opened an ophthalmic hospital in Canton, which may be said to have been the beginning of the present general hospital and dispensary, although a dispensary was opened in that city as early as 1828.

Dr. John G. Kerr, who returned to this country last year, has been honoured by the appointment of second vice-president, to which his long and valuable services justly entitle him. He was Dr. Carrow's predecessor for twenty-two years, and was himself the successor of Dr. A. P. Happer (formerly of Philadelphia, and still resident in Canton), in charge of two dispensaries opened by him in 1851 and 1852.

As an evidence of the work done by Dr. Kerr, between 1854 and 1876, we have only to refer to the fact, that during that period he had 10,979 in-door cases, operated by lithotomy on 300 subjects, and by lithotrity on 87; and published seven medical works in the Chinese language.

Dr. Carrow entered upon a very busy life when he took charge of the hospital, and his report shows that the reputation of Dr. Kerr has not failed at his hands, as there was an increase of both *in-* and *out-*patients, and more cases of urinary calculus than were ever before operated upon in any year. It must be very pleasant for a surgeon to have such subjects for operating upon as the Chinese appear to be; hopeful, patient, not inclined to pyæmia or gangrene, and with flesh that readily heals by the first intention. Think of having 68 cases of lithotomy with but 4 deaths, as the experience of the first year, and the last 27 of them all successful.

There have been in all 550 urinary calculi removed at the Canton Hospital, and 492 cases thus far reported. Of 400 who were operated upon by the knife, 30 died, or 7½ per cent.: and of 90 cases of lithotrity, 8 died, or 1 death to 13⅓ of the former, and 11¼ of the latter. In view of this fact, Dr. Carrow has abandoned the use of the lithontriptor even for small stones, and especially since he finds that the incised cases are much sooner cured. He writes that lithotomy cases are usually well enough to walk about in seventeen days, and that "the Chinese do not take on inflammation as Europeans do." Where death results, it is generally due to inflammation of the bladder.

There were 71 cases of stone operated upon in 1876, 3 by lithotrity, under Dr. Kerr, and the balance, as before stated, by Dr. Carrow, with the knife. Twelve of the subjects were from 2 to 10 years of age, all of whom recovered. The calculi averaged 312 grains, the smallest weighing 60, and the largest 1400 grains Troy. The *in-patients* numbered 973, of whom 299 were females, and the *out-patients* 24,851, of whom 5343 were females. There was a time when scarcely any females applied for treatment, but the proportion is gradually changing in their favour.

Besides the Canton Hospital and Dispensary, there are four other dispensaries under the direction of the Society, located in neighbouring towns, and in all five there were treated upwards of 36,000 cases in the year, and at a marvellously low cost.

The most numerous of all the surgical cases belong to the eye, and of these there were 340 of *entropium* at the Canton Hospital. Dr. Carrow writes as follows of their method of operating:—

> "An incision is made running from the inner to the outer canthus, along the margin of the lid just below the eyelashes; the skin is dissected free from the cartilage of the lid for a distance of one-tenth of an inch, then an oval piece of skin is taken from the lid one-tenth of an inch from the insertion of the eyelashes. The skin, which is now free, is stitched to the upper margin of the wound, and made to occupy the space laid bare; this raises the skin into which the lashes are inserted without changing the position of the cartilage."

In answer to question 33 of our interrogatory, viz., "Why are ophthalmiæ so prevalent?" he attributes them to "the atmosphere of smoke in which the Chinese live, having no chimneys to their houses, but merely a hole in the roof, from which the smoke is not carried rapidly enough." and to the smoky condition of their narrow streets from the burning of incense-sticks used in worship.

Next to entropium, *cataract* is the most numerous as an eye affection, numbering 59 operations. In answer to the question, "Does the innate skill of the Chinese in handicraft show itself in the delicacy of their operations on the eye?" He writes: "It does." "No one could have a steadier hand or handle instruments with more ease, or indeed grace, than the Chinese. They become very expert in the operation for cataract, and the assistant at the Canton Hospital will operate with such success in this his particular department, that out of fifty cases he will not lose more than two. Their proficiency in this branch of surgery is indeed surprising." We may remark here that the same credit has been given by English surgeons in India to the native Hindoo, as an oculist. The question propounded to Dr. Carrow was prompted by the impression produced by examining a marvellously fine and delicate piece of carving executed in Canton, now in our possession: and we are not the least surprised at his reply, for we have never seen anything so convincing of their superiority in the delicate handling of tools and implements.

A special department in the hospital has been set apart for the treatment of *opium smokers*, of whom there were 142 under care in 1875. The opium is at once removed, and the patient put upon a generous diet. On the third day an active diarrhœa generally sets in, for which paregoric is administered; and in twenty days he is allowed to leave the hospital. What proportion of the natives smoke opium we have not been able as yet to learn with any degree of satisfaction, but are inclined to set it down as small among the whole of the inhabitants. The habit is one of progressive increase, and but few smoke less than twice a day. The amount consumed varies in value from $1.50 to $15.00 per month, which is a great tax on the purse of a working native. The effect is much more evanescent than it is when swallowed to excess, and requires a shorter and less active treatment to remove the nervous symptoms excited by the withdrawal. Dr. C. says "it is the rarest thing to see a Chinaman under the influence of alcohol."

Pyæmia and *gangrene* have very rarely been seen in the hospital, and appear to be very uncommon among the Chinese The former has but three times been met with in the Canton Hospital. Dr. C. remarks in his letter: "Wounds always heal by the first intention or primary union."

Tetanus, although a common result of mechanical injuries in many hot countries, is very rare in China. To the query, "Does it prevail in women after delivery as in India, or in new born infants?" Dr. Carrow answers "No."

Cholera infantum is not one of the diseases of children. *Rickets* occurs, but is not common. *Skin affections* are the most prevalent of all infantile maladies. As cows are not kept, the natives use "*congee*" as a substitute for milk diet. This is made by boiling rice in water with chicken or duck, and using only the fluid portion.

Cancer is a very prevalent disease, as shown by the number of cases presenting themselves for treatment; and quite a long list of operations is upon the hospital record. *Phthisis* is not so prevalent as in the United States; but scrofulous enlargement of the glands of the neck is very abundant.

To the question (29), "How do the Chinese bear the shock of operations?" Dr. Carrow replies "*splendidly!!*"

"They soon recover from chloroform, and I never find any ill effects from its use, and yet I use it every day." (30) "*Amputations* are seldom performed; one reason is that having no steam machinery in China, we do not have many accidents. *Necrosis* is very prevalent, and portions of the bones, especially the lower jaw and tibia, are often removed, from which the patients soon recover. The few amputations, both of arm and leg, which have been performed, have given entire satisfaction; no case has been lost."

Elephantiasis of the tuberculated variety is quite prevalent, and in many cases frightfully disfiguring. In answer to the question, "Is it ever entirely cured?" Dr. Carrow writes: "I can speak positively of but one case upon which I operated, removing the scrotum, which weighed eighteen and three-quarter pounds; patient is now entirely cured." Dr. C. thinks, from what he is able to learn, that it is not inherited.

Ovariotomy has been three times performed, once by Dr. Kerr, and twice by Dr. Carrow. The first was not completed because of serious complications; the second had extensive adhesion, and was of cancerous origin, the woman survived two days; the third was without complications, and the patient made a good recovery. With the growing confidence of the natives, this should in time become a frequent, and would no doubt prove a favourable, operation in a people so little inclined to inflammatory sequellæ.

Obstetrics. The fact that Dr. Carrow was called in to attend four cases where instrumental delivery was demanded, during the year, shows a very decided change in one of the strongest prejudices of the Chinese. His attendance also upon the Viceroy and family, and other officials, is also an encouraging sign of progress.

Education. There were eleven native medical students in the class at the hospital, against eight in 1875. A library and anatomical museum are in process of formation. There are now thirty-one native graduates practising in the southern districts of China. "Graduates of the hospital receive certificates, setting forth that they have been under instruction for three years, and signed by the surgeon in charge of the hospital." . . . . "The Chinese learn readily and rapidly, considering the small number of medical books which have been translated into their language. They have retentive memories, and, with the same chance as a student at home, would make as accomplished physicians."

Our surgeons in China have so far conquered the prejudices of the natives that they are no longer compelled, as in the early days of Dr. Parker, to secure themselves against liability in case of the death of a patient, by obtaining from him a written guarantee of immunity before operating upon him. Had their success in operations depended upon the same chances that surgeons in our hospitals at home have to calculate upon, it would have taken many more years before they would have attained their present reputation with the Chinese. But without pyæmia, hospital gangrene, erysipelas, and other surgical drawbacks, so common here, the practice with the knife must be one of far greater satisfaction than we can ever hope to attain, with all our improvements in forced ventilation, irrigating dressings, antiseptic applications, etc. It is a nice question to determine wherein consists the reason for this absence of hospitalism among the Chinese. Is it due to some innate cause of exemption, to temperament, to freedom from the effects of alcohol, to an anti-inflammatory diet, to climate, or what? In the treatment of cases in the hospital they are not confined to the native diet of rice and fish, but Dr. Carrow writes that they are allowed beef, mutton, pork, and poultry as animal food.

A comparison of hospital mortalities in rice-consuming countries, such as China, Japan, and India would be of considerable interest. The Japanese appear to be more intelligent than the Chinese, but to have much less physical stamina. The Hindoo sometimes recovers, after frightful lacerated wounds, in a marvellous manner. The Chinese have no advantages of climate over us, but rather the contrary; their peculiar exemption from surgical sequelæ must be due either to national constitution, lightness of diet, freedom from intemperance, or all three combined. We know that there are no worse subjects in our own country for enduring the shock of injury or a surgical operation, than those who drink daily large quantities of beer. Habit has much to do with the prospective results of surgery, but national innate advantages, irrespective of habit and climate, must have a potent influence also. R. P. H.

ART. XL.—*The Practitioner's Reference Book, adapted to the Use of the Physician, the Pharmacist, and the Student.* By RICHARD J. DUNGLISON, M.D. 8vo. pp. 341. Philadelphia: Lindsay & Blakiston, 1877.

IN this compilation the author has endeavoured to group together, and preserve in a form that will facilitate reference, items of information upon a number of subjects that would be ordinarily inaccessible, or at least out of sight and out of mind of the proverbial busy practitioner. Having in view the practical character of the book, we find that its contents generously fulfil the promise and plan of the work, and appear to fully warrant the hope of the author that it will prove a desirable and useful addition to the armamentarium of the physician. The Hippocratic oath appropriately introduces the work. Under general information for the practitioner, we find the relations of the weights and measures, including the metrical system, approximate measurements, and conversions of measures into weights, a subject that is exciting especial interest at present in view of the attempt to substitute weights for measures of capacity in the U. S. Pharmacopœia, and the prospective introduction of the metric system into common use for prescribing.

The solubility of medicines in different menstrua is important to be known, and is here exhaustively treated; the results are carefully given in tabular form to facilitate reference.

Under Therapeutic and Practical Hints, Dr Tanner's rules for the practitioner are quoted, and Dr. Acland's scheme for systematic examination of patients is given in full. Following these are tables of doses, which are carefully compiled, and give evidence of considerable labour. In addition to the maximum doses, the approximate metric doses are given of several hundred articles of the Materia Medica, including everything that the prescriber would be likely to wish to refer to.

The doses for hypodermic use, for atomization, for gargles, collyria, douches, and enemata, and the different suppositories, are all explicitly stated. Baths and how to medicate them; pharmacopeial groups simplified for ready reference; lists of incompatibles; hints on prescribing, with more than one hundred selected prescriptions, and the remedies in use in the modern treatment of disease, follow in succession. Points in the management of infants, a table of eruptive diseases, syllabus of uterine inflammations, and obstetric memoranda, contain a great amount of useful information. Brief rules for the clinical examination of urine, chemically and microscopically, are sufficiently full for ordinary use. The work also considers poisons and antidotes, treatment of the apparently drowned, disinfectants and their practical application, and directions for preventing the spread of contagious diseases, dietetic rules and precepts, and other subjects too numerous to mention. The manner of conducting a post-mortem examination appropriately forms the concluding section of the book, and gives full instructions for the gross examination of all parts of the body.

The author may be congratulated upon his success in accomplishing his original design of giving to the busy practitioner a work of ready reference, containing in a compact and tangible shape practical information that will meet many of his daily needs. This he has done, and has done it in a careful and painstaking manner. The list of the principal remedial agents, arranged in conjunction with the diseases to which they are applicable, will supply to the practitioner a means of ready reference and a mine of useful therapeutic suggestions. The typography and press-work are excellent, and add greatly to the attractive appearance of the volume.

F. W.

ART. XLI.—*Reports of American Hospitals for the Insane.*

1. *Northern Hospital for the Insane*, Wisconsin. Year ending Sept. 30, 1876.
2. *State Lunatic Hospital*, at Northampton, Mass. Year ending Sept. 30, 1876.
3. *State Lunatic Hospital*, at Worcester, Mass. Year ending Sept. 30, 1876.
4. *New Jersey State Lunatic Asylum*, at Trenton. Year ending Oct. 31, 1876.

1. DR. KEMPSTER, from the Hospital at Oshkosh, Wisconsin, has prepared a very readable sketch of the progress which the century has witnessed in the means and principles of treating the insane. He directs attention also to the supreme importance and the urgent duty of individual observance of the laws of health, and of the avoidance of marriages likely to entail disease and misery upon the issue, and onerous burdens upon the State.

In the matter of treatment, stress is laid upon the fact that insanity is a disease of debility, and that it requires and ought to receive a varied and generous diet. Economy, as well as humanity, demands it.

2. Following the drift, so common during the centennial year, of considering the past in the light of the present, Dr. Earle, of the Northampton Hospital, brings up the reported results of treatment in our insane hospitals when first founded, and shows that some of the figures could hardly have been simple expressions of fact, free from any tinge of fancy. Of their recent cases, some of the earlier superintendents, cured, as they reported, some 90, some 95, and some even 100 per cent.! Results so different from those of their successors are to us a surprise and puzzle. With all our improvements, a much smaller success would content us. Though Dr. Earle suggests no explanation, some circumstances pointing thereto must have come under his observation. To vindicate, in some degree at least, the honesty of the early hospital men, some conditions peculiar to their time should be remembered. The institutions were few in number, and so imperfectly understood, that they obtained much less of the public confidence than after becoming more common. One result of this was, that of recent cases only those attended with high excitement, and unmanageable at home, were promptly placed in the hospitals. The quieter forms of disease took their chances at home. When we consider that the former class of cases have been found to be much more curable than the latter, and also that the latter come under hospital treatment, if at all, at a much later period, we can see one reason for the larger proportion of cures reported in the earlier days. Another reason may perhaps be found in the fact that, forty or fifty years ago, insanity was far less commonly accompanied by an exhausted vitality, and by those cerebral lesions especially prevalent of late years, resulting from fast living and excessive strain. General paralysis, now so fatal, was then unknown. It may have appeared occasionally before its true character was recognized; but we have reason to believe that the cases were very few. Dr. Bell, of the McLean Asylum, after becoming familiar with its features abroad, satisfied himself by a careful examination of his case-books, that not a single case of the disease had occurred here until a quite recent period.

Very likely this excessive proportion of cures is attributable in some degree, as Dr. Earle suggests, to the temperament of the physician, his "capacity for self-deception" and other "weaknesses of human nature." The "Hartford Retreat" and the "Worcester Hospital" had led the way to astonishing successes; and their contemporaries and successors felt bound in honour not to fall behind. Notions as to what constituted recovery were then rather loose. Indeed, a difficulty still exists; for who can always draw the line exactly between recovery and improvement? We know very well that one man would apply the one term, and another the other, to the same case. Making all allowances, and remembering the circumstances mentioned, we need not be greatly astonished that Dr. Bell, in 1840, should have declared that "all cases certainly recent recover under a fair trial" of hospital treatment. His next sentence, indeed, indicates that he had designed to state a general rule, rather than a literal fact. Every one who knew Dr. Bell is aware that no man was ever more honest and careful than he in drawing conclusions, or less disposed to write in an *ad captandum* spirit. At a later period he recognized the change in the character of mental diseases above noted, and also reported a much smaller percentage of recoveries.

We regret that Dr. Earle did not improve the opportunity to show his readers how little hospital statistics really teach us concerning the curability of insanity. A certain proportion of those discharged are adjudged recovered; but we ought not to infer that the others were all incurable. They were discharged, most frequently, not because the physician deemed them incurable, but because their friends, for one reason or another, ordered their removal. Thus the discharges of patients uncured, often indicate not so much the character of their malady, as the temper and disposition of their friends. To ascertain how many of the patients entering our hospitals finally recover, would require investigation to be continued often long after their discharge. We are not aware that any attempt of this kind has been made in this country. In the January number of the *Journal of Mental Science*, Dr. Arthur Mitchell has recorded one conducted by himself; and it is an excellent specimen of such investigation. It does not fall within our present purpose to analyze its results, but we commend it to the attention of all who would like to see even one trustworthy examination of this subject.

3. In the report of the Worcester Hospital, Dr. Eastman improves his opportunity by bringing together a large number of quotations from the reports of the State hospitals, to show the utter falsity of some accusations recently brought against these institutions. Certain wiseacres, in a report made to the Massachusetts Legislature, ventured upon the extraordinary statement that "hospitals do not prevent insanity, because they do not, by the intercourse of their officers with society at large, by their published reports, and by their general relations to the public, seek to enlighten the people on the subject of insanity, its predisposing causes, its hereditary tendencies, its relations to intemperance, ignorance, poverty, and crime," etc. The extracts given in refutation of this most unfounded allegation, show that almost every report of the venerable institution at Worcester touches on the subjects mentioned. Our impression is, also, that more than half the reports from the other hospitals contain similar information and warning. The annual reports of a hospital in an adjoining State, from 1848 to 1867, have, in every instance save four, something on the causes of insanity, and occasionally the matter is treated at considerable length.

How the Legislature of the old Bay State is to be edified by reports like the one quoted, which, if read in the House, must have raised a smile even on the face of the venerable codfish looking down from his coigne of vantage over the Speaker's chair, is a question beyond our power to answer. If people would inform *themselves*, before undertaking to enlighten the public, much ink and paper would be saved.

4. The New Jersey Hospital at Trenton has lost the services of the distinguished physician, who has for a quarter-century superintended its affairs with such eminent ability. Dr. Buttolph, having been called to the corresponding position in the new asylum at Morristown, has been succeeded at Trenton by Dr. Ward, for nine years past assistant physician at the older institution.

Speaking of the tendency of insane hospitals to become filled up with chronic incurables, Dr. Ward earnestly urges the importance of an early resort to hospital treatment. Far too often the asylum is the last move instead of the first. The development of insanity is frequently so gradual that the disease is hopelessly confirmed before the grosser and more demonstrative symptoms appear.

Dr. Ward attaches the very highest value to chloral as a sleep-procurer. He finds it safe, prompt, and free from unpleasant after effects. The disagreeable and dangerous results which have led many physicians to distrust and fear this drug, he attributes to changes produced in it by light and air, and to the use of a poor article. German chloral, freshly dissolved in spring-water, in the dose of fifteen or twenty grains at bedtime, gives perfectly satisfactory results. "Croton chloral and the crystallized chloral have in our hands proved quite unreliable." The bromides have lessened the force and frequency of epileptic seizures, but had no curative action in old cases. In a few cases of incipient epilepsy, the medicine has seemed to cure.

B. L. R.

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES

IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

On the Function of the Spleen.

Dr. M. Schiff, Professor of Physiology at Geneva, in a paper on the above subject, read at the late meeting of the International Medical Congress at Geneva, presented the following conclusions:—

1. Extirpation of the spleen exercises no durable influence on the quantity of the white or red blood-corpuscles.

2. For a limited time after extirpation the number of white corpuscles is greatly increased, while the red corpuscles may or may not remain unchanged. These alterations do not depend on the removal of the spleen; they are connected with the preliminary steps of the operation, and are seen to occur when the first steps have not been followed by extirpation of the organ.

3. Tumefaction of the lymphatic or other glands occurs in exceptional cases only. The so-called supplementary spleens are not found if the animal be allowed to live for a year and a half after the operation, or if extirpation has been practised a few weeks after birth.

4. The tumefaction of the mesenteric glands observed in a few cases after the experiment seems to depend on a limited chronic peritonitis which sometimes follows the operation.

5. The spleen appears to increase in size between the fourth and seventh hours following the digestion of a copious meal.

6. During digestion, or more properly speaking, during absorption of food by the stomach, the spleen prepares a ferment which enters with the blood into the pancreatic tissue, and there meets a specific substance (probably albuminoid) which it transforms into pancreatic pepsine, that is to say, a substance capable of digesting albumenoid matters.

7. The digestive power of the pancreatic juice over albumenoid matter is lost after extirpation of the spleen, but its other digestive properties remain. The duodenal digestion of albumenoids, however, is rendered weaker.

8. After removal of the spleen the material destined to form pancreato-pepsine accumulates chiefly in the pancreas, and may there be also changed into pancreato-pepsine under the influence of those chemical changes which accompany the commencement of putrefaction after death.

8. After division of its nerves the spleen remains flaccid and then wastes, as is generally the case with erectile tissues when their vaso-motor nerves are paralyzed. —*Med. Examiner*, July 26, 1877.

Observations on Gastric Digestion.

F. Kretschy has published (*Deutsches Archiv für Klin. Med.*, Bd. xviii. p. 527) some observations on digestion made on a servant girl, aged 25, who was otherwise healthy, but suffered from a gastric fistula, consequent on the bursting into the stomach of an abscess originating in disease of the seventh rib of the left side. The opening was three centimetres in diameter (one inch), and from it protruded a red and easily bleeding fold of mucous membrane. A sound could readily be introduced into the alimentary canal, and conversely a portion of any food that was swallowed immediately made its appearance at the external orifice of the fistula. When Kretschy commenced his experiments the opening had already existed five months. Kretschy sought to determine the duration of normal digestion; and as the activity of digestion is dependent on the degree of acidity of the contents of the stomach, he endeavoured to ascertain how soon after food the stomach gave an acid reaction; when the formation of acid reaches its maximum, how it rises and falls, and how the alimentary canal behaves. He found that the digestion of breakfast lasted five and a half hours, the acid reaction attaining its maximum in the fourth hour, and falling to neutral in the course of the following hour and a half. The digestion of the mid-day meal (dinner) lasted seven hours, the maximum acid reaction occurring about the sixth hour, and the stomach becoming neutral at the end of the seventh hour. Examination of the contents by means of the microscope at the end of the fifth hour demonstrated the presence of numerous muscular fibres and starch granules. The digestion of supper lasted from seven to eight hours. At the catamenial period the stomach never at any time of the day presented a neutral reaction. The addition of 3 ccm. of alcohol prolonged the period of digestion of dinner; coffee prevented the acidity from becoming so great, and prolonged the duration of digestion one hour. Pepsin in 7-grain doses did not shorten the period of digestion. Distilled water did not cause the stomach to become acid. Alcohol becomes converted into aldehyde in the stomach.—*British and Foreign Med.-Chir. Review*, July, 1877.

On the Cause of Sleep.

Dr. W. Preyer, Professor of Physiology at the University of Jena, at the late meeting of the International Medical Congress, in a paper which he read on the above subject, presented the following conclusions:—

1. The researches which I have made on this subject lead to the following conclusions. Natural, periodical sleep is a condition totally different from pathological or artificial conditions resembling it, such as somnolence, coma, asphyxia, and narcosis.

2. Natural sleep has often been confounded with these states. The chief difference will be found in the circumstance that natural sleep is always preceded by some fatigue of muscles, organs of sense, or brain.

3. No mental phenomenon can manifest itself unless the brain be supplied with a certain amount of oxygen. The latter is carried to the brain by the bloodvessels. Whenever the ganglionic brain-cells receive a diminished quantity of blood cerebral action is suspended as it is during sleep.

4. Now, as the brain of a sleeping animal receives as much blood as it does when the animal is awake, we are compelled to infer that the influences of oxygen on the waking and the sleeping brain are different.

5. During an active condition of mind or body certain substances are brought into existence which are not found (or, at all events, very sparingly) during a state of rest—lactic acid, for example, and creatine. These latter substances may accumulate in the blood, and as they have a great affinity for oxygen they appropriate a principle required for active exertion. The first stage of this accumulation characterizes fatigue; the second stage gives rise to sleep; the third stage, when oxidation has been completed, is followed by awakening.

6. In a word, the products of muscular work, especially lactic acid, when artificially introduced into the system, are capable of inducing a sense of fatigue and even sleep, when all external causes of excitement are removed.

7. It may, and often does, happen that the artificial introduction of lactic acid or the lactates is not followed by the effects just mentioned. Such cases require a careful study of various influences before they can be explained: but I maintain that they do not shake, much less overthrow, the foundation of my theory.—*Med. Examiner*, July 26, 1877.

MATERIA MEDICA AND THERAPEUTICS.

The Therapeutic Action of Salicin.

In a lecture lately delivered before the Berlin Medical Society, Professor H. Senator summed up his experience of the use of salicin in more than seventy cases of different kinds, in which the aggregate number of individual observations amounted to at least 500. The following abstract of the lecture, which is published in full in the *Berliner Klin. Wochenschrift*, No. 14, 1877, contains the most important conclusions at which he arrived. The quantity of salicin necessary to produce a definite effect on an adult ranges, on the average, between eight and ten grammes, but even larger doses may be taken without any injurious result. The drug is best given in powder inclosed in wafers (*Oblaten*), each containing from 1 to 1.5 gramme. Solutions, each tablespoonful of which contains from 0.8 to 1 gramme, are also convenient, but require a large admixture of sugar to cover their strong bitter taste. Senator's observations deal with (1) the antipyretic, (2) the antiseptic, (3) the specific, and (4) the sedative action of salicin. Its antipyretic action was tested in typhoid fever and phthisis pulmonum, the temperatures being taken in the morning between 7.30 and 8.30, and in the afternoon between 4.30 and 5.30, the thermometer being usually placed in the axilla. Comparisons were made from time to time between the effects of salicin and those of salicylate of soda and salicylate of quinine. The latter drug, which Dr. Senator has constantly used for nearly a year and a half, almost always exerts a decided action on the temperature when given in doses of 1 to 1.5 gramme at a suitable time. Nine cases of typhoid were treated with salicin, in all seventeen times, and with one exception with decided reduction of the temperature. The greatest fall observed was 2° Cent.; in other cases all that was noticed was, that when the salicin was given in the forenoon, the expected evening elevation of temperature either did not occur, or was relatively very slight. The largest reductions of temperature appeared to follow the administration of the drug in the evening. The reduction was not always proportionate to the dose, perhaps owing to individual peculiarities, and to the varying severity of the cases. The action of salicin was often prolonged for twenty-four to thirty-six hours, whereas that of quinine is ordinarily over in ten, or at latest twenty hours, and that of salicylic acid still earlier. Salicin never reduces the temperature so powerfully as quinine or salicylic acid. Its use is never followed by copious perspiration.

In phthisis the action of salicin (administered once or more in fifteen cases) is much more variable than in typhoid fever, and is sometimes scarcely at all appreciable. The greatest reduction observed was 3° Cent., in a patient who previously had only had morning remissions of 1.5° to 1.8°. The chief advantage which salicin possesses over quinine and salicylate of soda in phthisis is the absence of the unpleasant after-effects, such as nausea, vomiting, and a feeling of persistent weakness, which not unfrequently follow the use of the latter remedies, and cause phthisical patients to object to their further trial. Salicin can also be given for a long time without affecting the digestive powers; nor does it, either in typhoid fever or phthisis, intensify diarrhœa if present, or increase the night perspirations in phthisis, as do salicylic acid and salicylate of soda. In pleurisy, parametritis, and other febrile diseases, the antipyretic action of salicin is similar to that in typhoid fever and phthisis. In some cases the first effect of its administration is to *raise* the temperature.

The antiseptic action of salicin internally administered was tested in one recent and two chronic cases of cystitis, but the ammoniacal condition of the urine was unaffected by its use. Senator's own experience is in favour of the treatment of vesical catarrh by the balsams, and especially by *balsam of Peru*, which seems to be better tolerated than copaiba and turpentine, and which can be readily taken dissolved in ether, spirit, or wine. With regard to the *specific* action of salicin in acute rheumatism, Senator entirely agrees with Maclagan and the other English writers who have published their experience of its value. In one point only he differs from Maclagan, for he denies that it entirely prevents cardiac complications. He gives details of a very interesting case in which endocarditis developed while the patient was under observation, and after he had taken large doses of salicin and salicylate of soda. Senator recommends medical men not to give large doses of salicin in rheumatic fever, but rather to let the patient take 0.5 to 1.5 gramme at intervals of one to three hours. In several cases of chronic rheumatic joint-inflammations following rheumatic fever, as well as in two cases of rheumatoid arthritis, and in two cases of true gout, salicin rendered decided service, not only in reducing the pain (sedative action), but also in reducing the swelling of the parts. In fifteen recent cases of intermittent fever treated with salicin, eight were cured, or exactly the same proportion as have been benefited by salicylic acid. In two cases of diabetes—a slight and a severe case—seven to twelve grammes of salicin per diem were absolutely without effect.—*Med. Times and Gazette*, August 4, 1877.

The Influence of Salicin on the Healthy Body with Special Reference to its Influence on the Temperature.

DR. SYDNEY RINGER, Prof. of Therapeutics at University College, and Mr. J. S. BURY undertook a series of observations to ascertain the effect of salicin on the temperature in health, and they have published their conclusions in the July number of the *Journal of Anatomy and Physiology*.

They found that the aspect of a patient under full medicinal doses is rather characteristic, being in many respects similar to that of a person suffering from cinchonism. The expression is dull and heavy, the face quickly flushes on slight excitement, and the eyes become suffused. The flush, of rather a dusky hue, suffuses itself uniformly over the whole face. The patient, made more or less deaf, often complains of noises in the ears. He complains, too, of frontal headache, and his hands, when held out, tremble a little. His breathing is rather quickened and deepened. In some cases one symptom may predominate; thus deafness may be almost complete, without headache or muscular trembling; but it rarely, if ever, happens that any symptom is unaccompanied with the dull heavy aspect and the readiness to flush. Under toxic, but not dangerous, doses, the headache is often very severe, so that the patient buries his head in the pillow. There may be very marked muscular weakness and tremor, associated with great muscular irritability, so that a slight tap, say on the shoulder, causes muscular contraction so strong as to jerk the arm backwards. There are often slight spasmodic twitchings when a limb is raised. Tingling of the extremities or other parts of the body sometimes occurs. The voice may become thick and husky. The respiration is hurried, sometimes deepened, sometimes sighing and shallow and almost panting, and seems as though it were performed rather laboriously, but the patient does not complain of any difficulty of breathing. The costal as well as the diaphragmatic movements are involved in the exaggerated breathing. Large doses, often repeated, quicken the pulse to 140 per minute, and it becomes very weak. In these healthy lads the drug did not cause delirium.

It is very noteworthy that salicin renders the sweat neutral or alkaline. The authors think, too, that the urine becomes neutral or less acid; but on this point their observations are too few to justify their speaking confidently. The alkaline reaction of the sweat was noticed in many rheumatic patients under the influence of large and frequent doses, and the sweat may be alkaline, whilst the urine is acid.

The result of their observations is that large doses of salicin have no appreciable effect on the temperature.

The best Anæsthetic.

Mr. Spencer Wells, in his Address in Surgery before the British Medical Association at its late meeting (*British Medical Journal*, Aug. 11, 1877), said: "In 1872 I made known my opinion that all the advantages of complete anæsthesia with fewer drawbacks could be obtained better by the use of bichloride of methylene or chloromethyl than by any other known anæsthetic. That was the result of an experience of five years, and of three hundred and fifty serious operations. The experience of the five succeeding years up to the present time, with more than six hundred additional cases of ovariotomy, and many other cases of surgical operations, has fully confirmed me in this belief. Given properly diluted with air, the vapour of chloromethyl has, in my experience of ten years with more than one thousand operations of a nature unusually severe as tests of an anæsthetic, proved to be, without a single exception, applicable to every patient, perfectly certain to produce complete anæsthesia, relieving the surgeon from all alarm or even anxiety; and its use has never been followed by any dangerous symptom which could be fairly attributed to it. I wish I could speak as confidently of the chemical composition of the fluid sold as bichloride of methylene as I can of its anæsthetic properties. But whatever may be its chemical composition, whether it is or is not chloroform mixed with some spirit or ether, or whether it really is bichloride of methylene, I am still content with the effects of the liquid sold under that name, when properly administered. The only deaths ever attributed to it were, I believe, rather due to asphyxia. No air was given with the methylene. By Junker's apparatus, air charged with methylene vapour is given, not the vapour itself, and, so employed, it has always been in my experience both efficient and safe.

On the Use of Eserine in Ophthalmic Therapeutics.

In the *Annales d'Occulistique* for January–February, 1877, Dr. Wecker speaks emphatically of the advantages to be derived from the repeated use of a solution containing one per cent. of the neutral sulphate of eserine.

This solution he recommends to be dropped in the eye every hour or hour and a half, with the idea of utilizing, on the one hand, its antiseptic qualities, and on the other its influence over the transudation of fluids, from its action upon the muscular coat of the bloodvessels.

Dr. Wecker uses it in three forms of disease.

1. In patients suffering from large ulcerations of the cornea with abscess; after having emptied the anterior chamber of pus, and made as free an opening in the abscess as possible.

2. In ulcus serpens. It is here especially useful when combined with keratomy, which Dr. Wecker prefers to the incision practised and recommended by Sämisch.

3. In suppuration of the corneal wound after extraction of cataract. The plan adopted by Dr. Wecker is as follows: A stylet is passed throughout the whole length of the wound in such a way as to evacuate the aqueous humour, and every half hour (if there be vomiting), or every hour, some drops of the eserine solution (1-100) are instilled. At the same time the eyelids are kept scrupulously clean by washing them frequently with a warm carbolic acid lotion (1-1000).

The solution of eserine decomposes rapidly, and should be freshly made every twenty-four hours in summer, and every two or three days in winter.—*London Med. Record*, July 15, 1877.

MEDICINE.

On Leuchæmia.

Dr. CHVOSTEK contributed the following three cases of this disease to successive numbers of the *Wiener Med. Zeitung* during the early part of the present year.

CASE I. An officer in the army, aged 46, had swelling of the submaxillary lymph-glands after a sore throat which occurred in January, 1875. They did not subside, and formed obvious tumours before the end of the year. Sudden amaurosis of the right eye, with myosis, appeared at this time. The fundus appeared normal, and it was supposed that the lymphatic growth in the neck was compressing the cervical sympathetic. Under continuous galvanism, the tumour in the neck diminished, the pupil dilated to its natural size, and sight returned to the eye. The glands in one armpit had, however, enlarged. In May, 1876, the inguinal glands were also swollen, and the tonsils and spleen greatly enlarged. The patient became weaker, and died of acute pleuro-pneumonia at the end of the following June. Beside double pleuritic effusion and hepatized lungs, the spleen was found to weigh 1651 grammes (about 52 ounces); the liver was also enlarged, as well as the solitary follicles of the intestines; and the bronchial, mediastinal, lumbar, and hypogastric lymph-glands were all hypertrophied. Except some atheroma of the aorta and hypertrophy of the left ventricle, the other organs were healthy. There were pale coagula in the heart and elsewhere, with excess of white blood-corpuscles. There is no mention of the blood being examined during life. Lymphatic tumours were found in the hypertrophied spleen, and in the mucous membrane of the œsophagus and trachea.

CASE II. An army surgeon, aged 48, excepting an attack of ague and a urethral stricture, had enjoyed good health until about 1871, when he noticed that the spleen was enlarged. In February, 1873, the left lobe of the liver was also found to be increased in size, then the inguinal glands, and this was accompanied by epistaxis and loss of flesh. When first seen, he was anæmic, with œdema of the ankles, great enlargement of the liver and spleen, and of the glands of the axilla and groin. On microscopical examination of the blood, the white corpuscles were found almost equal in number to the red: they were somewhat smaller than usual. Treatment with iron, quinine, and faradization over the spleen was without result, and the patient died in 1875. There was no necropsy.

CASE III. A married woman, 50 years of age, had frequently suffered from epistaxis and menorrhagia; and, during the last year, had become thin and pale, with pains in various parts of the body, and frequent dyspnœa. When first seen in April, 1872, there was great anæmia, with a *bruit de diable* in the right jugular vein; the spleen was enormous, filling more than half the abdomen. The white blood-corpuscles were increased in number. Faradization with dry brushes produced temporary contraction of the spleen, but was without permanent benefit, and galvanism proved equally useless. The patient was then lost sight of.

Dr. Chvostek remarks that of these three cases, the first began with hypertrophy of the lymph-glands (anæmia lymphatica, lymphæmia of Virchow, Hodgkin's disease), and then the spleen also enlarged (splenæmia of Virchow, leucocythæmia of Bennett); the second began with splenic, and went on to hepatic and glandular swelling; and the third was purely splenic, unless the bones may also have been involved (leuchæmia myelogenica of Neumann), which the author thinks was indicated by pains referred to the os calcis, sternum, and shoulders. This disease of the bones was certainly absent in the first case. The disease occurs more often in men than in women. Putting together Ehrlich's 91 cases, Mosler's 16, and the author's four (including one of splenic leuchæmia in a youth of seventeen, of which details are not given), he finds 75 in men to 36 in women. He proceeds at great length to compare the supposed etiology, course, and symptoms of his three cases with the statements in Mosler's monograph. The longest time in which the disease has lasted before a fatal termination is eight years; it appears to be usually more rapid in young patients. Quinine, iron, injection of the enlarged glands with arsenic, and treatment by galvanism and electricity, have proved as useless in Germany as the same methods of treatment, with phosphorus, iodide of potassium, and many other drugs, have in the hands of English physicians.—*London Med. Record*, July 15, 1877.

On Some Points in the Clinical History of Chorea.

Dr. W. R. GOWERS, of London, read at the late meeting of the British Medical Association a paper which had for its object to illustrate by cases some points in the common or occasional clinical history of chorea which have hitherto received little attention. I. *An increase in the irritability of nerve and muscle to electrical stimulation*, to both faradic and voltaic stimulation. The change can be observed best in cases of hemichorea. Five cases were narrated in which it was observed, and in some of these it was proved to disappear on the subsidence of the chorea. The same fact has been noted by Benedikt and Rosenthal, who have also observed a change in the nerve-reaction to voltaism which Dr. Gowers partially confirms. The significance of the increased irritability is probably an altered state of nutrition of the fibres of the nerves and of the motor nerve-cells of the spinal cord, under an irritation transmitted downwards from the diseased cerebral region, and is another illustration of altered nutrition in functional disturbance. II. *The relation of the muscular disturbance of chorea to voluntary movement.* The inco-ordination of voluntary movement varies independently of the spontaneous spasmodic movements. Instances were mentioned in which the spontaneous movements were slight and the inco-ordination great, in which there was much spontaneous movement and little or no inco-ordination, in which the relative proportion of the two varied at different periods of the same attack. Reasons were given for regarding the inco-ordination as something distinct from mere inability of the will to still the spontaneous spasm. As far as the observation went, they suggested the conclusion that the spontaneous spasm was in excess late in a case and during relapses. The independent variation of the two elements suggests that they depend on a morbid condition of distinct and perhaps separate regions. III. *The relation of chorea to other convulsive affections.* If chorea depends on an unstable condition of gray matter, it is not surprising to find it occasionally associated with other diseases which we ascribe to a similar instability, such as hystero-epileptic and epileptoid convulsions of various kinds, and even true epilepsy. In illustration of this, a series of cases were narrated, exhibiting—1. Chorea, with remarkable choreo-epileptic seizures during the height of the affection; 2. General chorea succeeding unilateral convulsions of six months' duration; 3. Chorea, succeeded immediately by persistent unilateral convulsions and hystero-epileptic fits; 4. Chorea, more severe on one side, succeeded immediately by convulsions on that side; 5. Chorea, followed after an interval of some years by epileptoid seizures; 6. Chorea, succeeded after many years by true epilepsy.—*British Med. Journ.*, Aug. 25, 1877.

Syphilitic Brain Disease.

The attention which has recently been given to the morbid anatomy of cerebral syphilis, and the careful clinical observation of the last few years, with which Wilks, Hughlings Jackson, and Buzzard, in this country, are especially associated, have led to some important additions to our knowledge. But the precise connection of the various changes of the brain with the several sets of symptoms has as yet been but imperfectly worked out. We know, in fact, that the morbid lesions may be divided into three or four distinct sets: affections of the arterial system, of the dura and pia mater, of the brain-substance proper by growths of gummatous material into its substance, and of the cranial nerves, not to mention the growths in connection with the cranium and external surface of the dura mater. In many cases these lesions and the symptoms consequent upon them are found combined in the same case, but in a not inconsiderable number of cases one or other predominates, and gives a special character to the symptoms. Thus in the class of cases which come under the head of syphilitic epilepsy, in which the peculiar mode of onset and evolution of the fits have led to the appellation of "Jacksonian epilepsy," in honour of the physician who first clearly studied and described them, the symptoms seem to be specially associated with a gummatous infiltration of the pia mater over certain portions of the vertex, and of a greater or less extent of the subjacent cortical substance. But in a very large number of cases the symptoms are ill-defined, irregular, and apparently capricious, and it is this irregularity and multiformity which is often regarded as the special characteristic of cerebral syphilis. It is certainly important that we should, if possible, be able to attach the various symptoms to the lesions which produce them, and to classify for purposes of prognosis and treatment the several clinical forms which present themselves. Something of this kind has been attempted by Heubner in a very able article in the twelfth volume of Ziemssen's *Encyclopædia*, to which an especial importance attaches, owing to the valuable work which the author has already done in connection with the morbid anatomy of the subject.

According to Heubner, cases of cerebro syphilis may be roughly divided into three distinct clinical groups. There are, however, certain symptoms which they have in common, and which occur in a large number of cases of all forms. Of these headache is the most frequent and striking, and usually the first to attract attention. This symptom, which is mentioned by all authorities on the subject, Heubner describes as being of paroxysmal character, often worse at night, intermittent in its appearance, and usually more or less circumscribed, the latter point being one on which Buzzard and Charcot especially insist. Heubner, however, regards this prodromal headache as due to changes outside the cranium, and in favour of this view states that it is distinctly increased by pressure on certain points. When the pain is continuous and persistent, he allows that it may be due to affection of the dura mater. Sleeplessness is another early symptom, often consequent upon the headache, but in many cases occurring independently of it. These two symptoms may precede the appearance of more definite ones by a long period. As the more definite outbreak approaches, certain other symptoms may occur, such as attacks of dizziness, mental disorder, and loss of memory, and other ill-defined nervous and mental derangements. "The disease itself," says Heubner, "makes its appearance with the most rapid and unexpected outbreak of severe cerebral symptoms. . . . The nature of this outbreak, as well as of the further progress of the disease, is determined by the anatomical form in which the disease develops within the cranium."

Of the three fundamental types which he lays down, the first consists in psychical disturbances, with epilepsy, incomplete paralysis (seldom of the cranial nerves), and a final comatose condition, usually of short duration. It is to this form that Dr. Hughlings Jackson has so strongly directed attention, in which the epileptiform seizures, followed by slight and usually transient paralysis of hemiplegic distribution, are the most striking features. Affections of the cranial nerves are rare, with the exception of the second pair, optic neuritis being especially common in this form. But, together with the convulsions, there occur not infrequently some mental disturbances, which may gradually go on to melancholia or mania, or a condition resembling paralytic dementia (general paralysis), but without exaltation. A peculiar slowness and hesitancy of speech (*embarras de parole*), especially marked on making efforts to talk, is also not uncommon. This epileptic form is in nearly all cases found to be due to gummatous growth in the pia mater of the convexity of one of the cerebral hemispheres, either limited and superficial, or involving more or less of the cortex, and forming a distinct tumour. Out of twenty-six cases observed by Heubner, where the morbid process was of this form, epileptic or convulsive attacks occurred twenty times; whilst in nineteen other cases, where the growth was limited to the white substance or the base of the brain, this symptom was found only twice. Similar observations were made by Jaksch, and these records entirely agree with the experience of Wilks, Hughlings Jackson, and others.

The second form described by Heubner is the apoplectic, characterized by "genuine apoplectic attacks, with succeeding hemiplegia, in connection with peculiar somnolent conditions occurring in often-repeated episodes, frequently phenomena of unilateral irritation, and generally at the same time paralysis of the cerebral nerves." The symptoms in this form vary greatly in character and degree, and present very marked changes from time to time, so that any comprehensive summary is difficult. The podromal symptoms are the same as in other forms, but the apoplectic attack may be preceded by a sudden paralysis of some cerebral nerve, or one of its branches only—ptosis, for example, being one of the commonest,—or by signs of irritation of the nerve, spasmodic contraction or neuralgia resulting. Then a genuine apoplectic attack, with or without loss of consciousness, occurs, resembling in its onset and course that due to other causes, and presenting considerable variety. But whatever the course of the apopletic attack and resultant hemiplegia, there is developed sooner or later a peculiar somnolent condition, which is very characteristic. This is described by Heubner as a typhoid, half-conscious and half-sleeping state, from which the patient can be aroused, and in which he displays half-unconscious motor impulses, and is in a condition analogous to somnambulism. But whilst this condition may pass into fatal coma, it not unfrequently undergoes rapid improvement, and even recovery of a normal condition. Relapses, however, again and again occur. It is the combination of these attacks of hemiplegia, paralysis of cranial nerves, and somnolent condition, variously grouped, occurring apparently independently of each other, all liable to very marked alternations of severity, but in unequal degree, which constitutes the peculiar character of this form of cerebral syphilis. It is in this form that the peculiar affection of the cerebral arteries, leading to their more or less complete obstruction, is found, and upon this change appear to depend the apoplectic attacks and the hemiplegia. Heubner found that nearly all his cases of this arterial disease ran their course according to this form. The affections of cranial nerves depend usually on their implication in the infiltrated pia mater at the base, or on a primary affection of their trunks. The hemiplegia is obviously due to changes in the central ganglia, not of themselves syphilitic, but resulting from temporary or permanent obstruction of the blood-supply. But on what does the somnolent condition depend? Heubner believes that it is the result of the narrowing of a number of arteries, in consequence of which there is diminished momentum in the capillaries of the region supplied by them, and consequent congestion and defective oxidation. He accounts for the temporary recoveries by the possibility of the nervous substance becoming gradually accommodated to the change of vascular tension. He does not state how often there was present extensive disease of the dura mater, nor does he refer to this as productive of any symptoms, so that the speculation, though ingenious, seems to require further confirmatory evidence.

The third form described by Heubner resembles very closely ordinary general paralysis of the insane. It differs, however, in the comparative infrequency with which delusions of exaltation are observed, and in the fact that exacerbations in the psychical symptoms often coincide with the outbreak of fresh syphilitic eruptions, or other local affections of bones, throat, nose, etc. Later on, transient and irregular paralyses are observed, which come and go in a very rapid manner. Still the distinction from some cases of paralytic dementia is not easy to define. This form seems to occur at a much earlier period than is usually the case with those previously described; and, unlike them, it is unassociated with any gross anatomical lesions, at least none have as yet been discovered in recorded cases. We have little doubt that microscopic examination will show that equally distinctive, though less obvious, changes occur in this as in the other forms. Of the three forms thus described, Heubner states that the second, that dependent upon or associated with arterial disease, is the most rapidly fatal, and may lead to speedy death by apoplectic fit, followed by coma, multiple thrombosis of several important arteries being found after death. Several cases of this nature were described during the recent discussion at the Pathological Society.

We have thus outlined the chief points of Heubner's description, which, if it is perhaps somewhat too precise and definite, is at least a valuable attempt to classify and arrange on anatomical grounds a highly variable and complex disease. There can be no question that the prognosis is very greatly influenced by the site and nature of the affection. But on this point, and on the question of treatment, we must refer to the original article.—*Lancet*, August 4, 1877.

Case of Thrombosis of the Cerebral Sinuses.

In the *Berliner Klinische Wochenschrift* for November 13, 1876, Dr. KARL KOLB [of Kaiserslautern], reports the following case. Theresa F., aged 17, of strong build and well nourished, suffered when 13 years old from purulent discharge from the right ear. She was only deaf two days, and at this time the discharge only lasted about a week, but it recurred frequently, and she stated that she had suffered much from headache. Two years ago she kept her bed for a fortnight, on account of a severe attack in the ear, but she could give no details of this illness. She had also slight hæmoptysis. In October, 1874, she had great discharge from the ear, which ceased after the application of leeches, and syringing with tepid water. Her fresh attack began in October, 1875, and was ushered in by an eight days' discharge of blood-stained matter from the ear. The discharge was dark red, sometimes contained clots; and, according to the patient, pure blood ran from the ear on one of these days. From this time to November 3 she suffered from severe headache, especially in the right side, increased by movement, disturbed sleep, or complete sleeplessness; for several days *rigors* recurring daily, œdema and inflammatory swelling of the skin, chiefly over the right mastoid process, and in the course of the internal jugular vein, and upwards towards the temporal fossa. A greatly swollen vein ran across the mastoid process. There was also tumefaction of the skin of the forehead and of both eyelids, with slight exophthalmos of the right side. There was intolerance of light; movement of the head was very painful; and both eyes were spasmodically closed, and difficult to open. The pupils were of equal size and moderately dilated. There was no discharge from the ear. There was almost total deafness in the right ear, whilst on the left side her hearing was almost normal. The pulse was variable, but generally slow. Her temperature was not increased. The appetite was moderate, and the bowels constipated. After admission to the hospital there was vomiting, three to nine times a day. She complained of vertigo. On November 6 night-wandering set in, and then confusion of thought during waking hours, and general convulsions of a severe kind. On the 7th she had general hyperæsthesia, interchanging with delirious dizziness and mental hebetude. The temperature was normal all through; the highest evening temperature being only 99.8° F. The pulse ranged between 62 and 90 per minute. After a week her symptoms ameliorated, and on November 16 they had all vanished. Only the want of sleep and hebetude lasted till the 13th, and even after that date there was some delirium, chiefly when half awake. The clonic spasms ceased after the 15th. These from the 10th had chiefly affected the right arm, the flexors of which being in tonic spasm in the intervals, had bent the right elbow at an acute angle, and the right leg. The hyperæsthesia was also chiefly on the right side during this period. The headache became milder, and more diffused. The inflammatory swelling diminished, and on November 16 was almost limited to the region of the mastoid process. After the 14th the vomiting ceased, and on the 15th she again slept. Sight and hearing improved, and her appetite was good. During this period of amendment she had an eruption of tender hemorrhagic spots, of the size of lentils, on the right lumbar region, on a surface about 4 inches in diameter. At the same time, there was stabbing pain in the left side of the breast. After the 12th a dry cough, and on the 16th bleeding from the right nostril. These hemorrhagic spots lasted about a week, and then a second spot, about two fingers' breadth distance, was similarly affected. On the 19th she left her bed, and till the 23d only complained of pain, lasting one day, in the left knee. On this day, however, she had a fresh attack of the symptoms, and a third on December 12. On the 20th she complained of much giddiness, and had more severe tonic and clonic spasms, with retraction of the head and loss of consciousness, dilated pupils, and twitchings of the ocular muscles. From this till the 29th daily she had epileptiform attacks. On the 26th and 27th (after some hæmoptysis) the catamenia appeared. On the next day she had intense pain in the belly, and increasing meteorism. The urine was first passed in drops, and then in a more powerful stream, but only when the bladder became fully distended. On the 30th she had severe headache, and redness of the right side of the head and face. Convulsive attacks from time to time followed. On January 8 and 9 there was a good deal of erysipelatous swelling of the forehead and nose. On the 13th she had a short convulsive seizure; but, with the exception of occasional headaches, her recovery was uninterrupted though gradual. Only during the last week of January, for a couple of days, was there any serous discharge from the ear.

Dr. Kolb considers that, besides the symptoms pointing generally to cerebral mischief, there were special signs of thrombosis of the cerebral sinuses, for, in addition to the repeated rigors, there were the following symptoms: 1. Swelling over the right mastoid process, with remarkable fulness of one of the superficial veins; 2. The purely œdematous swelling of the trunk of the internal jugular vein and right temporal fossa of the forehead and both eyelids, and exophthalmos in the right side; 3. In both eyes intolerance of light, spasms of the eyelids, and obscured vision; 4. Hemorrhage from the nose; 5. Other symptoms of embolisms in the cutaneous hemorrhages over the loins, in the repeated attacks, which indicated hemorrhages in the lungs (pain, spitting of blood, etc.), and the repeated rigors. The fact that the temperature was never elevated, was decidedly against meningitis of the summit of the brain. Gerhardt's symptom of imperfect filling of the internal jugular vein could not be observed, owing to the swelling of the surrounding parts. The rest of the paper is devoted to a consideration of the exact localization of the thrombosis in the sinus, and a review of the case. The author thinks its happy termination shows that operative interference would have been superfluous. [The reporter, however, cannot but think that a timely opening into the mastoid cells might have prevented the repeated relapses.—*Rep.*].—*London Med. Record*, August 15, 1877.

Opening an Abscess of the Brain.

A case that has occurred under the care of Dr. PROUST at the Lariboisière has recently made a considerable stir in Paris, and although the "success" at first reported has turned out to be no success at all, we may give the chief particulars. As a consequence of an attack of typhoid fever, a man aged fifty-five (*Gaz. des Hôp.*, July 21 and 28) was attacked with inflammation of the posterior and superior part of the left parietal bone, which was followed by a fistula giving issue to a small quantity of pus. His health was otherwise satisfactory, and he was remaining in the hospital as a convalescent, when on July 10, while quietly talking, he suddenly fell down insensible. The loss of consciousness did not long continue, but he was found to have become hemiplegic on the right side, while he could only stammer out some words with great difficulty. On the 12th he fell into the comatose state again, and Dr. Proust now began to connect this condition with the lesion of the parietal bone. The symptoms might, indeed, be explained by a cerebral hemorrhage or an embolus; but, on the other hand, the seat of the lesion opposite the motor regions of the cerebral surface, to which so much attention has of late been called, seemed to point to a not less probable explanation. The necrosis of the parietal bone was of considerable extent, and corresponded over a pretty large surface to the motor zone of the encephalon. Might not a spiculum of bone be compressing the nervous substance at this point? So, also, a collection of pus may have formed under the bone which produced the compression. In fact, the irregularity of the symptoms as regards their intensity, and the rapid and temporary amelioration which ensued, little favoured the supposition of the existence of an effusion of blood. Under these circumstances, Dr. Proust sought the opinion of Dr. Tillaux as to how far surgical intervention was desirable. In M.

Tillaux's opinion, the symptoms observed were most probably due to the compression produced by a fragment of necrosed bone, while the hypothesis of the existence of an abscess beneath the dura mater, or formed at a distance in the cerebral substance (such as is often observed as a consequence of lesions of the cranium, and especially in caries of the petrous bone), might be very reasonably entertained. He therefore made a crucial incision into the scalp, and removed the sequestra, the dura mater beneath being found thickened and covered with fungosities. It was now determined to wait awhile before incising the dura mater, to see the effect of the removal of the pressure caused by the spicula. On the 13th the patient seemed a little better, his speech being somewhat more easy; but next day the signs of cerebral compression returned more markedly than before. Some variation was observed in the condition of the patient during the following days, but upon the whole he continued to get worse, and surgical intervention seemed called for. Accordingly, on the 17th, M. Tillaux laid bare the cranium around the loss of its substance which already existed, and having removed the necrosed portions of bone, found himself in close vicinity to the mesial line. By careful manipulation with a small chisel and mallet, the bone being very thin, he laid bare the dura mater over a space about four or five centimetres in length and three or four in breadth. All the part of the dura mater corresponding to the necrosed bone was covered with fungosities, but beyond this it appeared healthy. A crucial incision was made into it, and beneath its fungous part the brain was obviously softened. After some hesitation, seeing the man's desperate state, it was resolved to penetrate the brain itself in search of a deep-seated abscess. A puncture extending at least to two centimetres and a half was made, and some thick, creamy, "laudable" pus escaped by the side of the bistoury. This came out much more abundantly when a grooved director was passed in to the distance of four centimetres, so that at least three spoonfuls were discharged. The patient did not seem to suffer during the operation, and on interrogating him some tolerably just replies were elicited, but the paralysis persisted; his speech continued embarrassed, and his intellect was evidently obtuse. On the 18th the man seemed better, and there seemed less "intellectual oppression." A considerable quantity of pus was discharged. On the 19th fever was set up, and the condition seemed very unfavourable. No pus was discharged; softened, tumefied, and diffluent cerebral substance seeming to have filled up what was the cavity of the abscess. The man died shortly after, and at the autopsy there were found three other abscesses within the substance of the brain, two of which were much nearer the region which has been termed the motor zone—*i. e.*, the region in the vicinity of the fissure of Rolando. Moreover, the cerebral substance itself had undergone great alterations in the centrum ovale, behind this fissure.

Dr. Revillont, in giving an account of the case, considers that the operation, in the desperate state of the man, was quite justifiable. When, on the discharge of the pus, the hemiplegia still persisted, other abscesses or lesions were to be expected, which would probably be found, as they were found, nearer to the fissure of Rolando than the abscess which was opened; for, otherwise, a greater effect would have been produced in the hemiplegia by the issue of so large a quantity of pus. "The case was the more valuable as it has given a double confirmation of the conclusions drawn from the experiments on animals regarding the motor zone. It is a confirmation in the living subject, for an abscess was suspected, and has been found where it was sought for; and a confirmation at the autopsy, as the negative results which followed the operation, as regards the symptomatology, led to the very probable supposition that alterations could be found closer to the vicinity of the fissure of Rolando, where, in fact, there existed two abscesses and softening of the white substance of the centrum ovale."—*Med. Times and Gazette*, August 4, 1877.

On the Prevention of Epileptic Fits by Subcutaneous Injection of Morphia.

In the *Berliner Klinische Wochenschrift* for April 2d, Dr. E. VALLENDER relates three cases in which apomorphia was subcutaneously injected during the aura preceding the fits, and in all three of which it always had the effect either of preventing the seizure altogether or of materially diminishing its severity and duration. All the three patients were women.

A. K., aged 20, was subject to very frequent epileptic attacks (ten to fifteen in the twenty-four hours); each fit was preceded by an aura consisting of a sensation of heat and considerable pain, commencing in the region of the stomach and spreading over the upper part of the body; after a free interval of only a few minutes the seizure took place. On the first occasion when the treatment was adopted, about one-fifteenth of a grain of apomorphia, dissolved in six minims of water, was injected during the aura; instead of the usual strong fit, the patient was for several minutes in a condition like a faint, with loss of consciousness. From this time the injections were repeated as often as possible during the aura, sometimes as often as five times a day; the effect was always evident, and the duration of the attacks greatly diminished. Only one-thirtieth of a grain was administered at a time; this caused nausea, but no sickness. When the injection was omitted the fit always occurred with its previous severity. After several weeks the seizures steadily diminished in frequency, and even when the injection was omitted only a slight fit occurred. During three weeks the patient only suffered from three slight attacks of *petit mal*, and these were without any previous aura. The treatment was now suspended for a fortnight, during which time the fits again steadily increased in frequency and severity; with the resumption of the treatment improvement again took place, until the fits ultimately ceased, and the patient has now been two months without any attack.

It seemed probable that the beneficial action of the apomorphia in the above case was owing to its specific action on the stomach, as the aura evidently commenced in the vagus nerve; but that the drug is also effective when the aura has another origin is proved by the two following cases.

E. B., 22, epileptic from infancy, had lately suffered from several fits daily, each of which lasted an unusually long time. The aura consisted in a feeling of giddiness, and was separated by a distinct, although very short interval, from the commencement of the fit. Under these circumstances it was difficult to inject at the right time, *i. e.*, during the aura; but when this was done the duration of the attack was always greatly lessened. The fits became gradually less frequent, and after some weeks' treatment the patient has had no fit for four weeks.

A. P., 44, had been epileptic for many years; the aura which precedes the fit by about a quarter of an hour, consisted in a prickling sensation, commencing in the toes and extending upwards, to which was added palpitation of the heart and a feeling of constriction round the chest. Whenever injections were made during the aura the fit did not take place at all. The patient did not remain long enough under treatment for any observation to be made as to its effect on the frequency of the attacks.

The author says that when the injection was given at the proper time, *i. e.*, during the aura, it was never without effect; and, as will be seen from the above cases, it acted best where the interval between the aura and the fit was longest. One-thirtieth of a grain was the regular quantity of apomorphia injected on each occasion, very rarely more; no bad results were observed, notwithstanding the frequency of the injections.—*London Med. Record*, July 15, 1877.

On the Prevention of Epileptic Seizures.

Professor H. NOTHNAGEL, of Jena, records (*Berliner Klinische Wochenschrift*, October 9. 1876) the case of a married working woman, aged 37, whose mother was subject to violent headaches, and whose aunt was an epileptic. The patient herself after a severe mental shock became an epileptic in her eighteenth year. Ever since, at intervals for the most part of a quarter to half a year, she has been troubled with epileptic fits—which seem from the description to have been typical and severe. Each fit is preceded by an aura, which consists in peculiar and uneasy feelings, beginning in the epigastrium, and mounting to the throat. There was a feeling of suffocation mixed with an indescribable but horrible sensation. She is then forced to sigh, and after once or twice doing this, the feeling mounts to the head, which is then drawn to the right side; she loses consciousness and the fit commences. She only had these feelings once without a fit. But, following the advice of a neighbour, she has discovered a means of stopping the fit, if only she can get the remedy as soon as she feels the aura. The remedy consists in swallowing common salt. Generally speaking, a half or even whole teaspoonful is not enough. She generally puts a "handful" in the mouth, and swallows it by the help of water. Professor Nothnagel, commenting on this case, and on the means mentioned by Brown-Séquard and others of stopping some epileptic attacks, refers to his article *Epilepsie* in Ziemssen's Handbook (Band xii.) and his "Beobachtungen über Reflexhemmung," *Archiv für Psychiatrie und Nervenkrankheiten* (Band vi.). There is, however, a *chemical view* which has scarcely been noticed, for nearly all the so-called remedies are either haloid salts or have a similar, though more compound, type of formation.—*London Med. Record*, June 15, 1877.

Acute Ascending Paralysis.

Dr. HERMANN EICHHORST (Virchow's *Archiv*, Feb. 1877) relates the case of a woman who was an inmate of Professor Frerich's wards for intermittent fever, and who was suddenly seized with paralysis of the superficial peroneal nerve of the left leg, accompanied by deep-seated pain, formication, chilliness, and excessive sweating of the limb. The sensibility of the skin supplied by the cutaneous branches of the affected nerve soon disappeared. At first, the electric excitability of the muscles was not altered, but soon became lost. A week later, the profundus nerve became similarly affected; and, in three days, this was followed by paralysis of the left posterior tibial nerve. She became feverish; all four extremities became paralyzed; complete blindness overtook her; respiration became irregular; the temperature reached 39.8 Cent. (103.64° Fahr.); and the patient died.

The post-mortem examination showed nothing remarkable about the central nervous system, except redness and injection of the optic nerves; the right lung was œdematous; the heart was hypertrophied, dilated, and fatty; the kidneys presented some degree of cirrhosis, with dilatation of the pelvis of the left kidney. There were fibroid tumours in the uterus. Microscopical examination of the central nervous system threw no light upon the case; but the peripheral nerves were found injected and reddened; and the radial, ulnar, and median nerves of the left arm, when carefully examined, showed all stages of an acute neuritis, with lymphoid infiltration of the nerve and destruction of the nerve-tubes. The vessels of the nerve-sheaths were thickened, and peculiarly dull glistening; their nuclei were increased, and often lay together in groups of as many as three or five; their substance looked solid and homogeneous. There were heaps of lymphoid cells which followed the course of the vessels. No microscopical examination of the paralyzed muscles was made.

This case differs from the type described by Landry in the loss of cutaneous sensibility and muscular electro-contractility, but these obscure cases probably constitute a group of varying elements, the above being one possible form.

[The association with cirrhosis of the kidney, and a remarkable change of the vessels, appears to bring this case into the category of nervous affections, to which Sir W. Gull and Dr. Sutton have drawn attention.]—*London Med. Record*, July 15, 1877.

Parenchymatous Glossitis.

Dr. T. SIDLO, of Vienna, reports in the *Allgemeine Wiener Medicinische Zeitung*, Nos. 8, 9, 10, 1877, seven cases of acute parenchymatous inflammation of the tongue. In six of these cases the whole organ was affected; in the seventh the right margin only was inflamed and swollen. Five patients were between the ages of 20 and 25 years; one patient was 30 years old, and the seventh 44 years. All the patients were males. In six out of the seven cases the affection came on in the winter. Three patients, up to the commencement of the attack, had been strong and in perfect health; one patient had recently suffered from intermittent fever, and another from croupous pneumonia; the sixth was the subject of chronic Bright's disease, and the seventh of pulmonary tuberculosis. The author states that in most cases of this rare affection there is some difficulty in determining the cause. It seems to be very seldom, if ever, due to any traumatic influence. According to Bamberger, sudden chilling is the most frequent cause. In 4 out of the 7 cases reported by Dr. Sidlo, the attack came on shortly after exposure to cold. Not very much importance, however, is attributed by the author to the action of chilling in the *direct* causation of glossitis. Inflammatory irritation of the pharynx and air-tubes is very often produced, he points out, by cold, but the tongue itself is very rarely affected in like manner and from such cause. It is thought that in those cases of parenchymatous glossitis in which there is a true history of exposure to cold, the tongue is not primarily affected, but the inflammation is first excited in the soft parts of the sublingual and submaxillary regions, and afterwards extends to the tongue itself.

In his remarks on the treatment of parenchymatous glossitis, the author advocates the use of the knife in preference to the application of caustics and astringent solutions. The sucking of ice seems to be attended with but little benefit. When the tongue is much swollen, it should be promptly incised. Rapid relief is afforded by incisions; pain speedily subsides, and the tongue soon regains its normal size and freedom of movement. In all, save very severe and advanced cases of glossitis, and when extreme swelling of the tongue and alarming dyspnœa demand speedy relief through long and deep incisions, the author prefers to free cuts on the dorsum multiple scarifications of slight extent and depth along the free margins of the organs. Through this practice, drainage of effused fluid is established in many directions, and reduction of swelling is more rapidly affected just at the parts where it is most needed, viz., along the margins of the tongue, which are liable to become ulcerated in consequence of pressure on the teeth.

The author opposes the generally accepted view, that the dyspnœa and attacks of threatening suffocation, often met with in cases of acute glossitis, are due to the swelling of the posterior part of the tongue to such an extent as to cause this organ to touch the posterior wall of the pharynx and to depress the larynx. Such result of abnormal increase in the length of the tongue is obviated by its partial protrusion in front between the teeth, and by the efforts of the patient to drag it forward. The tongue, according to the author, in consequence partly of its enlargement, partly of swelling of the sublingual soft parts, becomes elevated and applied to the nasal palate; at the same time the posterior portion of the swollen and elevated organ presses upwards and backwards upon the soft palate, which then acts as a curtain, and arrests the passage of air from the nasal fossæ into the pharynx.—*London Med. Record*, June 15, 1877.

Notes on Pleuritic Effusion in Childhood.

Dr. Thomas Barlow and Mr. R. W. Parker read at the late meeting of the British Medical Association a paper which was based exclusively on what the authors had observed either conjointly or separately; and they thanked their respective colleagues at Great Ormond Street and the East London Children's Hospital for allowing them to use their clinical material. The notes were laid down on the following lines: 1. The difficulties of diagnosis between pleuritic effusion and other chest affections in childhood; 2. The difficulties of diagnosis between serous and purulent effusions; 3. The natural course of pleuritic effusion in childhood when unmodified by treatment; 4. The methods of treatment which had appeared to them the most successful. The authors concluded that the variation in the classical signs and symptoms is so great, that in many instances the diagnosis cannot be cleared up without exploratory puncture. They recommended the use of the hypodermic syringe in every case of doubtful dulness in the pulmonary regions. They laid great stress on the fact that, in children, extreme retraction of one side of the chest is compatible with the existence of both serous and purulent collections in the pleura of that side. The old teaching that the passing of a serous into a purulent effusion could be discriminated by the onset of hectic, they believed to be incorrect. Marked hectic occasionally occurs with serous pleurisy; whereas in many cases of empyema it is present in very moderate amount and for some days not at all. Clubbing of finger-ends they had never seen with simple serous effusion, but they had seldom seen an empyema without it. The natural issue of unmodified serous effusion appeared to be absorption in most cases sooner or later. Serum may continue serum for many weeks without being converted into pus. Alongside of facts showing this, was to be remembered the extreme frequency of empyema in young children, and it seemed a question whether many cases of empyema are not empyema *ab initio*. As to the relation between tuberculosis and empyema, it was believed that the tubercle is more frequently secondary to the empyema than the reverse. With respect to spontaneous evacuation, that by means of rupture into the lung had appeared the least unfavourable, but it had been very uncertain; and protracted external spontaneous evacuation—between the clavicle and the nipple—had not given a single good result. In the treatment of serous effusions, the diagnostic puncture by a hypodermic syringe, the authors were quite certain, has been followed in some cases by rapid absorption. Where the history is recent, the effusion serous, and small or moderate in amount, they preferred to abstain from further operative interference. Where three weeks elapse without improvement, they would try the effect of removal of a small quantity, either by the hypodermic syringe or the aspirator. If the effusion were considerable, it is right to perform paracentesis at once not only to relieve dyspnœa, but to give the lung a chance of re-expansion before adhesions bind it down, quite irrespectively of pyrexia. If the fluid be purulent, it was recommended to withdraw as much as possible with a hypodermic syringe capable of holding at least two drachms. Occasionally, this will remove all that is present in one spot, and gently moving the needle will give information as to the size of the cavity. The authors had found by experience the necessity of bearing in mind the possible existence of multiple collections of pus completely separated by adhesions. If there be more pus present at a given spot than the hypodermic syringe will remove, it is better to introduce the aspirator-trocar. The authors had not seen any English aspirator equal to that of Potain as made by Matthieu, of Paris. A little bleeding in the course of the paracentesis had frequently stopped after the valve had been shut off for a few moments. If, after reopening, blood should continue to come, it was recommended to stop the aspiration. In a large number of cases, aspiration had been performed under anaesthetics. This appeared to have three advantages: 1. The facility thereby gained of making a thorough exploration; 2. The avoidance of shock and collapse; 3. The avoidance of the troublesome cough so well known at the conclusion of paracentesis thoracis without anaesthesia. Chloroform preceded by a small dose of brandy appeared to them better than ether for these cases; and it was believed strongly that, if anaesthetics be used at all, they should be pushed on to complete insensibility. When the effusion was general, the authors found the angle of the scapula a better position for puncture than the midaxillary line. In localized effusions, the puncture ought to be made at the centre of maximum dulness. In a certain number of cases there had been excellent recovery after a single aspiration; seven, at least, of such cases had been observed. Successful results had been obtained after repetition of the paracentesis up to six times. If the pus do not become fetid, and if at each successive operation the quantity notably diminish, there seems no reason to limit the number of attempts to be made to cure the empyema by repeated aspiration. If the pus should become fetid or rapidly reaccumulate in larger quantity permanent drainage is recommended. In all cases, it was contended that this should be by a double opening. If possible, the first opening should be made in the front of the thorax, and the second below and internal to the angle of the scapula. A long probe, threaded with a piece of drainage-tube, may be passed downwards and backwards from the first opening, and the second incision made over the point of the probe when it is felt through the integuments. The drainage-tube should then be drawn through and secured by tying the two ends together. The authors contended that by the method of double opening there is the certainty of more complete and rapid evacuation of pus, and consequently of more rapid adhesion of the parietal and pulmonary pleuræ, than by the single opening. They had often seen difficulties with respect to evacuation arise when a single opening had been made only in the mid-axillary line. Apart from the unfavourable shape of the pleural cavity for drainage, it was important to bear in mind that when retraction begins to take place the ribs approximate most in the axillary region, and in a child, especially, there is risk of the intercostal space through which the tube passes being so narrowed that the tube is gripped by the two contiguous ribs. In front and behind, the width of the intercostal space is greater and undergoes less diminution as the side retracts. Most of the cases with which the authors had been concerned were dressed with oakum. They had seldom had need to use stimulant injections, but in one case they saw marked and rapid improvement from the use of a solution of quinine.—*British Med. Journ.*, August 25, 1877.

Retardation of the Carotid Pulse in Aortic Insufficiency.

In the *Revue Mensuelle de Médecine et de Chirurgie* for January, 1877, Dr. RAYMOND TRIPIER, Physician to the Hôtel Dieu of Lyons, contributes a paper on the comparative retardation of the carotid pulse, as compared with the systole of the heart in cases of incompetency of the aortic valves. He says that his attention was first drawn to the subject in 1868, by finding a striking retardation of the radial pulse in a patient suffering from this form of heart disease. But the same patient showed a considerable interval between the cardiac systole and the carotid pulse. The interval in the case of both vessels far exceeded what he had ever noticed in the most anæmic cases. A second case of the same kind induced him to consult the authors who have written on this subject. He found that Henderson had already proposed it as one of the signs of aortic insufficiency.[1] The editors of the *Archives* observe that Marc Despine made especial note of the retardation of the pulse in peripheral arteries in the sittings of the Academy of the 19th July, 1831. This is, however, not quoted in their published memoirs, though it may be mentioned in the *Comptes-rendus* of the session. Very few authors mention this symptom. Valleix and the authors of the *Compendium de Médecine* merely quote Henderson. Aran (*Archives Gén de Méd.*, Nov. 1842) says that in spite of trials he has not been able to confirm this symptom. Requin (*Traité de Pathologie Médicale*, 1844) treats it as a normal phenomenon. Grisolle, in his *Pathology*, published in 1851, p. 306, quoting the English physician, says: "This is not peculiar to aortic insufficiency; this defect of isochronism between the contraction of the ventricle and the systole of the peripheral arteries is a physiological phenomenon which can easily be verified whenever the circulation goes on with sufficient slowness." Forget (*Précis des Maladies du Cœur*, 1851, p. 184) ascribes it to the feebleness of the heart's impulse; whilst Friedrich (*Treatise on Heart Diseases*. French translation, by Lorber and Doyon. 1873) dissents from Henderson without giving any reason. Dr. Soulier obligingly referred Dr. Tripier to the opinion of Dr. Francisco Roncati, that the retardation of the pulse, especially in the arteries most remote from the heart, is a characteristic symptom of aortic insufficiency (*Indirizzo alla diagnosi delle malattie del petto del ventre e del sistema nervoso*, Naples, 1868). He says, "It is a necessary consequence of the increased calibre and elongation of the arteries, but as this is met with only in the later stages of the disease and in the most severe cases, it is not astonishing that most observers have overlooked it. And moreover it is said to occur also in cases of advanced atheroma of arteries, in those of great relaxation of the arterial tunics, dependent on chlorotic and oligohæmic conditions, and in very large aneurisms and chronic lead-poisoning." We see, therefore, that Henderson believes this retardation of the peripheral pulses to be one of the best signs of aortic insufficiency; Roncati believes it to be met with only in severe cases; whilst Friederich rejects it summarily, and Grisolle and Requin consider it a physiological phenomenon. This led Dr. Tripier to reexamine the subject. That the radial pulse is a little behind the cardiac systole, is an unquestioned physiological fact: that cachectic states, anæmia, chlorosis, and the like, and states of gradual recovery from severe fevers, etc., render it still more evident, is also admitted. But it would seem that there are some cases of aortic insufficiency in which this symptom is so strongly marked as to differ widely from the slight retardation above mentioned, and these cases cannot well be confounded with the others. Dr. Tripier has examined a great number of patients with the view of ascertaining if this retardation of pulse be common. For the most part his researches have given negative results in cases free from aortic insufficiency, although four large aneurisms of the thoracic aorta and one of the innominate artery were included. He therefore concludes that neither the physiological retardation of the carotid pulse, as regards the cardiac systole, nor the same phenomenon as a pathological condition, can be recognized by the hand except in cases of aortic insufficiency. Owing to the distance of the radial pulses, the retardation of these is more easy to detect, and may be met with, as stated above, in a number of conditions, and may perhaps be recognized by keen observers, even in health. As regards the carotid, Dr. Tripier's method is as follows. The observer should place himself on the right side of the patient and apply the palm of the right hand, or rather the whole hand, face downwards, on the region of the heart, so as to clearly catch the impulse of the heart's apex in the centre of the hand; in this way a very distinct impression of the cardiac systole is obtained. Then he should place the thumb of the left hand on the right carotid, at the point usually selected for ligature, at the side of the larynx, whilst the other fingers and the palm of the hand rest on the latero-posterior region of the base of the neck. It is very important to feel the artery well under the thumb, and that it should not slip aside. When quite satisfied that one feels both pulsations, attention should be paid to their being isochronous or not. The position of the patient seems immaterial. He may be seated, or lying down, with the head and shoulders a little raised by pillows. The sitting position is preferable, when the apex-beat is rather feeble. Two causes of error may be easily avoided. The first is the venous pulse of the internal jugular vein; if the carotid be fairly felt, by firm pressure downwards, there can be little danger of this mistake. The artery may be explored a little higher up, if at all in doubt. The alternate auricular and ventricular systoles of the heart might deceive a careless observer in some cases, or if only one or two fingers were used for the heart; but if the whole hand be applied between the fifth and sixth costal interspace (usually below the nipple) the sharpness and suddenness of the ventricular systole can hardly be mistaken. Dr. Tripier publishes his cases of aortic insufficiency examined in this way, but it will be sufficient for us to give the general results. He gives 26 cases (13 pages are devoted to the histories). In all there was a diastolic bruit, and in 17 of them there was a double blowing murmur, whose point of intensity was the base of the heart. In most, the other well-known symptoms of aortic insufficiency were present. There was retardation of the carotid pulse in 14 of these cases, though it was slight in three of them. There were 13 post-mortem examinations in the 26 cases, or in all but one of those who died. In six of these the retardation had been noticed in life, whilst in seven the carotid pulse was synchronous with the apex-beat. In these the incompetency of the aortic valves was but slightly marked, whilst in the other six, in which the carotid pulse was retarded, there was great incompetency. In four there was a triangular space left by the separation of the valves. Those cases in which there was synchronism and but little incompetency, were all cases of atheromatous degeneration. The others were chiefly due to more acute cases (as rheumatism, endocarditis, etc.). Whether, therefore, we take the whole number of cases investigated by M. Tripier, or only those in which there was a necropsy, the results are almost identical. In 14 of the whole 26 patients, and in six of the 14 necropsies, there was marked retardation during life of the carotid pulse, as compared with the cardiac systole, or in about half the cases. M. Tripier thinks the difference makes a clinical variety. The first class, with the retardation, are generally less than 40 years of age, are rheumatic subjects, and all the cardiac symptoms, Corrigan's pulse, etc., are well marked, and there is tendency to sudden death. The second class, with synchronous carotid and apex-beat, are over 50 years of age, have dyspnœa, cough, some œdema of the feet, and present renal, pulmonary, or bronchial complications, rather than purely cardiac symptoms. These cases, though severe, will probably live longer than the others. M. Tripier quotes some experiments made by him (admittedly somewhat imperfect) which lead him to the conviction that this retardation is not entirely due to a diminished blood-pressure. In one of his cases he obtained tracings of the pulses which showed that the judgment of the hand was not fallacious. The other experiments were made with a *schema* or artificial circulation.—*London Med. Record*, June 15, 1877.

---

[1] William Henderson, *Edinburgh Medical and Surgical Journal*, October, 1837, quoted in the *Archives Gén. de Méd.*, 1837, 2me série, tom. xv. p. 309.

Aneurism of the Hepatic Artery.

Dr. GEORGE ROSS, Prof. of Clinical Medicine, and Dr. WILLIAM OSLER, Prof. of Institutes of Medicine in McGill University, report (*Canada Med. and Surg. Journ.*, July, 1877) the following case of this very rare affection:—

W. H., æt. 21, single, of very temperate habits, was admitted into Montreal General Hospital, November 8, 1877, complaining of pains in the right side and of great weakness. His family history is good. He has enjoyed good health, and has never had dysentery, nor piles, nor any abdominal or rectal trouble. His illness began about the 1st of September last, with what he describes as a severe cramping pain in the stomach, which began in the morning and continued all day. At 4.30 P. M. of that day he had a violent rigour, lasting about twenty minutes. This was followed by high fever and perspiration. Similar chills recurred, he says, with great regularity, every second day for five or six times, and then ceased after he had taken some medicine from the Hospital Dispensary. At this time his appetite became poor, he felt weak, and was very low spirited, and observed that his skin assumed a sallow colour. Ever since he has been gradually getting weaker and losing flesh pretty rapidly, and the sallow tint of the skin has been steadily increasing in intensity. There has also been almost constantly present a dull, aching pain in the right side over the region of the liver. Slighter rigours, followed by fever and some perspiration, have also occurred several times at irregular intervals.

Present condition.—Much emaciated, somewhat anæmic, but the whole skin of a dirty, dingy, sallow hue, without any jaundice—the sclerotic clear, and not yellowish. There is a very peculiar, pungent, somewhat feculent and extremely disagreeable odour exhaled from the surface of the body.

There is slight fulness of the right hypochondriac region, which is also somewhat tender upon pressure. *Liver.*—Dulness extends from the fourth interspace to one inch below the margin of the ribs. The belly is full and tumid, and tenderness is also found on pressure over the epigastrium. Splenic dulness not increased. Tongue slightly furred, rather dry, and with red edges. Bowels have been, and still are, considerably relaxed, the motions being light-coloured, and especially offensive. Urine, sp. gr. 1019, high-coloured, but containing neither bile pigment, albumen, nor sugar.

Heart.—Situation and sounds normal, pulse 116. *Lungs.*—Resonance and breathing normal throughout, except at the base of the right lung where there is an area of dulness, with enfeebled respiration. Temperature 105° F.

Ordered quinine gr. xx each evening.

Nov. 11. Has not complained much of the pain. Disagreeable odour from the body very marked. Bowels are regular, but motions are ochre-coloured and offensive; tongue clean. A dull red flush on cheeks, especially in afternoon. Has occasional slight epistaxis. Temperature has ranged between 102° F. and 103° F.

16*th.* Is getting weaker, but is quite cheerful, and feels well. Tongue moist and clean; takes nourishing food very well, and bowels remain regular; never vomits. Temperature continues equally high, always rising 2° or more in the evening, followed by sweating, which is sometimes very profuse; this usually commences at 6 P. M. Urine 43 oz., sp. gr. 1022. No bile pigment albumen, or sugar.

23*d.* The volume of the liver has considerably increased, and, owing to the progressive emaciation, bulging of the lower ribs on the right side has become quite apparent. Dulness extends from the top of the fourth rib to two inches below the margin of the ribs. The lower edge of the liver cannot be felt, owing to the fulness of the abdomen and its tender condition. Pain on pressure over liver region and epigastrium increased. His strength is failing fast, and the sallow colour has become deepened. The odour from his body has been so offensive in the ward for some time that the House Surgeon has been obliged to employ spongings with carbolized solutions, and disinfectants round the bed. He lies almost continuously on his back, occasionally turning slightly towards the right side, but any attempt at turning on his left side is accompanied by severe pain and a feeling of dragging and weight in the region of the liver. The superficial veins on the right side of the chest are very large and prominent. Ordered linseed poultices over the liver.

29th. Tenderness less. Hepatic dulness increased in area, measuring eight inches vertically at the line of the nipple. No localized fulness or redness of the skin or fluctuation to be found anywhere. The enlargement of the organ is very general and uniform. Pulse 128, very small and feeble. Temperature continues high with evening perspirations. Is remarkably cheerful, saying he feels well but weak, although he suffers a good deal of pain. Ordered acid nitro-mur. dil., tr. calumb., āā ʒss ter die.

Dec. 6. Rapidly sinking. The signs of effusion in the right pleura, hitherto stationary, have in the last few days rapidly extended, and there is now dulness over the lower two-thirds of that side, with absence of breathing, and an amphoric note beneath the right clavicle.

7th. Died at 6 A.M.

Autopsy, thirty-one hours after death.—Rigor mortis present. Skin of a dirty-brown colour. In the abdomen about 22 oz. of yellow turbid fluid. In the right pleural cavity about 20 oz. of similar fluid. *Right lung* collapsed; the pleura covered with a thin layer of greenish-yellow lymph. On section, the lung is dark, airless, and sodden. *Left lung*—on the visceral layer of the pleura, especially behind, are numerous small ecchymoses. On section, organ contains much blood, is firm, and only slightly crepitant. *Heart* normal. *Kidneys* rather pale, cortex swollen, and Malpighian tufts injected. *Spleen*, weight 445 grms. (14 oz.), adherent to the stomach. Organ soft. On section, dark and congested. *Intestines* normal. No trace of ulceration in the large intestine. *Bladder* and prostate normal.

Liver, 4879½ grammes (10¾ lbs.); the peritoneum around it in many places showing signs of inflammation. The left lobe intimately adherent to the stomach by a thick layer of firm yellowish-coloured lymph. The right lobe also cemented to parts in its neighbourhood by lymph of a similar character. A small amount is also observed on the descending colon, but the general peritoneal surface is not affected, the serous covering of the intestines being clear and glistening. The liver itself retains its normal shape, the upper surface is smooth and not adherent. Towards the right border a yellowish-coloured swelling is evident, which is perceptibly fluctuating. Other less distinct yellowish spots are seen scattered over the organ. To the touch the upper and back part of the right lobe is exceedingly soft and fluctuating. On the under surface many yellowish-white nodules are apparent, some large, others quite small, all distinctly fluctuating. A similar one of large size is apparent on the under surface of the left lobe. A transverse incision through both lobes reveals the fact that we have to deal with a diffuse suppurative hepatitis. An immense quantity of yellowish-white, custard-like pus flowed out. The right lobe is completely honey-combed by a series of small, closely united abscesses, ranging in size from a marble to a walnut. The septa between these abscesses are composed of a dark-red tissue. Most of these small abscesses communicate together; some have merged to form larger ones; they all possess distinct lining membranes which are frequently stained with bile. The left lobe is in a similar condition, and in both the abscesses extend throughout the thickness of the organ. Thus, the only portions of liver-substances which are found comparatively free are the lobus quadratus and that portion of the organ lying immediately above and a little to the left of the gall-bladder. These parts on section are of a dark colour, lobules distinct; small bile vessels very evident. The gall-bladder is small, contains about three drachms of a clear, somewhat viscid secretion. On pressing it and along its ducts no fluid could be forced out at the papilla billaria. It was with much difficulty that a probe could be passed along the cystic duct, owing to an unusual number of irregular folds of its mucous membrane which were evident when the duct was slit up. The common bile-duct itself was patent, the mucous membrane of its upper two-thirds stained with bile. There were no clots in the superior mesenteric, gastric, or splenic veins. On slitting up the portal vein itself, a small abscess was found to project into the calibre of one of its right divisions. The tissue in the neighbourhood of these main divisions was infiltrated with pus. A firm nodule was felt at the portal fissure and mistaken at first for a bunch of lymph glands. Section of this, however, showed it to be distinctly laminated, and careful dissection of the part revealed the existence of an aneurism just at the bifurcation of the hepatic artery, but occupying chiefly the right branch. The dilatation begins immediately beyond the gastro-duodenalis, and extends for about three inches as a somewhat conical swelling. The left hepatic artery arises from the obtuse end of the aneurism, and is unaffected. At its thickest part its circumference measures three inches. For two and a half inches it passes to the right and gives off two branches, which appear occluded, then turns at right angles and passes backward for an inch and a quarter, towards the posterior border of the liver, terminating by a conical extremity which is continuous with the main branch of the artery. The arteries of the body had been injected, and the red mass is found in the trunk of the hepatic before its bifurcation, in the gastro-duodenalis, and the left hepatic branches, all of which are full and tense. The hepatic artery appears to enter the aneurism about a quarter of an inch from the obtuse end, the gastro-duodenalis and left hepatic being given off apparently from the dilatation itself; and on slitting up the hepatic artery it appears at first sight as if these were its only branches, and that its communication with the aneurismal sac had become obliterated. Careful inspection, however, of the lower and posterior wall reveals a small canal, of the calibre of a hypodermic needle, which leads directly into the sac. The aneurism being opened by a longitudinal cut on the upper surface, it is seen that the anterior third, comprising the rounded end, is completely filled with firm decolorized laminæ of fibrin, concentrically arranged. The middle third of the sac contains semi-coagulated blood, and red injection mass, after emptying which there is seen a cavity about the size of a small walnut. This is in communication with the hepatic artery by the small canal already referred to, which passes for rather more than half an inch through the fibrinous laminæ of the anterior end. Two small branches, both containing injection, pass from the cavity, one the cystic, going to the gall-bladder, the other a somewhat larger branch, passing to the central part of the organ. The sac is lined with sheets of fibrin, which at the under part were thinner than elsewhere, and at this point the blood has infiltrated the proper coats of the aneurism, which, in consequence, look reddish-black. The terminal portion of the sac lay chiefly in the substance of the right lobe, surrounded by suppurating hepatic tissue, which had to be dissected away to expose it; and on section the cavity is found almost completely obliterated by fibrinous laminæ, which in the centre are softer, and not so colourless as the other end of the sac. No direct passage could be traced through this from the central cavity, and the main branches given off from the aneurism are found empty, and at their commencement plugged with fibrin, which in several extends as a thin sheet along the intima.

The condition appears to be one of simple aneurismal dilatation of the vessel, the walls being thin, slightly roughened on the interior, but not markedly atheromatous. The trunk of the hepatic artery itself looks healthy, and there are no evidences of general vascular degeneration.

Remarks.—Aneurismal dilatation of the hepatic artery would appear to be of rare occurrence, the chief reason, of course, being that its main cause, atheromatous degeneration, is very seldom met with in this situation. Embolism of this artery Frerichs has never seen—the situation and mode of giving off of the vessel being such as to hinder the entrance therein of foreign substances from the stream of the aorta. One single case of the kind has been recorded by Virchow, where an hepatic abscess followed embolism from a gangrened lung.

The same author (Frerichs) alludes to four, or possibly five, as the only recorded cases of aneurism of the hepatic artery. They are those of Ledieu, Stokes, Sestier, Wallman, and Lebert. In the case of Ledieu, the patient died of some pulmonary complaint, and had never had any symptoms of hepatic disease. There was found, just before the giving off of the pyloric branch, on the hepatic artery, a small hard tumour the size of a hazel-nut. It was entirely composed of firm laminated fibrin, and had completely occluded the main artery. The case of Sestier was also obscure. There had been "symptoms of some chronic painful affection of the stomach." The right branch of the vessel was found occluded by a small aneurism filled with clots, and the gall-bladder was gangrenous.

In Wallmann's patient, a female, there was an account of attacks of violent pain in the upper part of the abdomen, coming on after intervals of several days, gradual loss of strength, and emaciation. There was enlargement of both liver and spleen. No ascites; no fever. Then there supervened obstruction of the ducts, with perceptible fulness of the gall-bladder, and very deep jaundice. She was believed to be suffering from gall-stones; then fever, abdominal tenderness, collapse, and death. A large aneurismal tumour was found in the situation of the lesser omentum. It was the size of a child's head, and showed a rent communicating with the cavity of the abdomen.

Lebert's case was accompanied by severe pains in the pit of the stomach, followed after a time by hæmatemesis and melæna. Vomiting was persistent, and the patient soon died. The aneurism involved the main trunk of the vessel, and communicated by a fistulous opening with the gall-bladder, by which means the blood had found its way into the duodenum and stomach.

From a relation of these cases Frerichs sums up as follows the clinical features resulting from this lesion:—

"The symptoms to which aneurism of the hepatic artery gives rise are accordingly of a threefold nature. In the first place there is the tumour, which is sometimes remarkably large, and displaces the liver; secondly, there is the neuralgic pain, produced by pressure upon the hepatic plexus of nerves; and lastly there is jaundice caused by compression of the bile ducts. The fatal termination in most cases takes place under symptoms of internal hemorrhage."

We are inclined, therefore, to look at the record of the present case as of considerable importance, inasmuch as it clearly shows that besides, or even without, any of the symptoms mentioned by writers as accompanying aneurism of the hepatic artery, it may actually institute an entirely different series—those, namely, of acute suppurative hepatitis of a diffuse character. The case as it came under observation was one presenting the marked characteristics of the latter disease, and every possible source of the contamination of the portal system which might have given rise to it was interrogated in vain. Of course, we need hardly say that the real cause was entirely unsuspected, nor do we see but that the diagnosis of the aneurism was truly impossible. In the future, however, we must admit, in cases owning no other evident cause, that hepatic aneurism may be the starting point of acute hepatic disease.

Among the many interesting points in connection with this case, the causation of the multiple abscesses takes the front rank; not only because in this one alone among the recorded cases was the fatal termination due to a suppurative hepatitis, but also on account of the extreme rarity in the human subject of opportunities of studying upon this organ the effects of disease of the hepatic artery. Taking for granted, as from the careful examination we may justly do, that the portal system did not in this instance furnish the materies morbi, we have to consider the consequence of total obliteration of the hepatic artery, or of its main branches, and also the effect of small emboli, in the form of particles of fibrin, plugging its terminal twigs.

It will be necessary first to refer briefly to a few anatomical and pathological points in connection with the blood supply of the liver. This, as in the lungs, is twofold; the portal vein ministering solely to the functions of the gland, the hepatic artery chiefly to its nutrition. The ultimate branches of the portal vein ramify at the periphery of the lobules, forming the interlobular vessels, from which numerous capillaries pass into the interior, and finally converge to the centres of the lobules, as the ultimate radicals of the hepatic veins. The hepatic artery furnishes blood to the bile ducts, portal and hepatic veins, and the connective tissue of Glisson's sheath. Its capillaries empty their blood by small venules into the interlobular veins. Hence, remembering this distribution of the hepatic artery, it is easy to understand how that in cases of thrombosis of the portal vein, even where the obstruction is complete, the functions of the organ may be maintained, and both bile and glycogen secreted; for the capillary plexus of the lobules continues to receive through the interlobular veins the blood which has been emptied into the latter from the venules of the hepatic artery. The nutritive blood serves as a substitute, acts vicariously, for the functional. It has been maintained, and the statement passes current in the text-books, that the converse of this is true, viz., that the portal blood can replace the hepatic, the functional act for the nutritive. This view is based on experiments made upon the lower animals. Schiff states that in the cat the functions of the liver are performed just as well after ligature of the hepatic artery as before; and Betz found that in the dog, after tying the trunk of the hepatic and all the collateral branches, no important alteration took place either in the structure of the liver or in its secretion.

Cohnheim and Litten have shown, however, in a very important paper on "Disturbances in the Circulation of the Liver" (Virchow's *Archiv*, May, 1876), that in experiments on dogs, arterial blood still reaches the liver even after ligation of the hepatic, the coronaria ventriculi, and the gastro-duodenalis, owing to the very extensive anastomoses and connections of these vessels. In the guinea-pig, on the other hand, the supply of arterial blood can be completely shut off, either from the whole organ or from individual lobes. In the former case the operation is always fatal within twenty-four hours, and even in this time important changes are found to have taken place in the organ. These are all the more marked if, instead of ligating all the arteries, only the one going to the extreme right lobe be tied; the result is an entire necrosis of the portion of the liver supplied by the ligatured artery, and in every instance the animal died within two days.

Cohnheim states that pathological proof of the correctness of this view is as yet wanting, but we are inclined to believe that by this case the deficiency is supplied; for we think the suppuration of the organ best explained on the view, that the shutting off the supply of blood, either by the gradual occlusion of the aneurism by clots, or by the quicker process of emboli conveyed away from the interior of the sac, produced numerous areas of necrosis, which subsequently became, by inflammation and a sequestering suppuration, converted into abscesses. It is impossible to determine, in the absence of any positive evidence, whether the process resulted from emboli or simply by the gradual obliteration of an important blood channel; and in any case there are certain difficulties which will occur to the minds of many in the view which we have suggested. There are at least two cases on record of total obliteration of the artery, without consecutive suppuration, one of which was from aneurism. Still, this, if occurring gradually, and not involving the pyloric artery, need not necessarily, as the above-mentioned experiments prove, deprive the liver of arterial blood. There is no reason to suppose that the obliteration in the case before us did not occur slowly, for the fibrinous laminæ, especially at the anterior end, were firm and tough. Again, on an embolic theory, it might be urged that in this instance the emboli, consisting of fibrinous shreds from an aneurismal sac, should have produced simply mechanical effects, infractions, and not, as in the case of emboli proceeding from necrotic or suppurating foci, abscesses. Mechanical emboli do, however, sometimes produce suppuration, and in the liver might do so by causing death of the structures supplied by the obstructed arteries, viz., the portal vessels, bile ducts, and connective tissue of Glisson. In the present case, supposing the process to depend on emboli, there would be arterial blood enough sent through collateral branches to furnish material for an active suppuration about the necrotic centres. Altogether, we think, the embolic theory meets the case better than any other. We must remember, too, that the disease was not rapidly fatal, but came on slowly, lasted five weeks or more, and it is not unlikely that during that time much of the fibrin was deposited, and the obliteration of the distal end of the aneurism took place. This is rendered still more probable by a consideration of the condition of the left hepatic branch, the commencement of which is involved in the aneurism, but which now, owing to the filling of the proximal end of the sac with fibrin, appears to be almost the direct continuation of the main trunk. In fact, for a short distance from the bifurcation, the upper wall of the left branch is made up of condensed fibrin, which is grooved by the blood channel. This explains, too, the occurrence of the abscesses in the territories supplied by the left branch. The almost entire obliteration of the obtuse end of the sac occurred, most probably after the mischief had been started by the escape of emboli. The appearance of the abscesses adds further support to this view. None of them looked recent or contained shreds of necrotic liver tissue, but all were filled with a creamy pus, and had walls lined by definite pyogenic membranes.

We have no clue to the origin of the aneurism itself. The age of the patient, and the absence of arterial degeneration elsewhere, are almost sufficient to exclude atheromatous degeneration as a cause, and the walls of the sac appear thinned but not evidently diseased. Of other agencies capable of producing aneurism, especially of smaller vessels, embolism is the most important, and, even in the absence of valvular disease, and remembering the unfavourable position of the hepatic artery for emboli, we are inclined to regard it as the most probable cause.

The Mode in which Lupus Spreads.

The mode in which lupus extends itself, and more especially the manner in which multiple patches are developed, is well worthy of investigation. Mr. JONATHAN

Hutchinson (*Med. Times and Gaz.*, August 4, 1877) gives the following explanation:—

My impression is that the processes are by cell-infection, and very closely similar to what we observe in cancer. When we see a patch of lupus spreading at the edge by the production of fresh tubercles in continuity with the original ones, we can have little doubt that the process is one of contagion by continuity. The diseased structures grow into the adjacent healthy skin. This is exactly what we observe in cancer of the skin, and more especially in that form of it which is known as rodent ulcer. In some forms of rodent ulcer we even observe a tendency to heal in the parts where the skin has been destroyed, closely similar to the process which is so constant in lupus. The two differ in this: that whilst the lupus cell-growth appears unable to maintain itself excepting in the skin-tissues, the cancerous growth, although it may have originated in skin, can grow deeply into the fascia, muscle, bone, etc. Yet let us note that although cancer can do this, it often manifests a remarkable tendency to restrict itself to the skin in which it was first developed.

The cases of multiple lupus, or what we have sometimes called "psoriasis-lupus," may be explained either on the hypothesis that nuclei or cells have been transferred from the original patch of disease through the lymphatic system or the bloodvessels, or by mere cell-travelling, to the parts secondarily affected; or, secondly, that some altered condition of the blood generally is the cause of the more or less simultaneous outbreak at different parts of similar processes of diseased action. The facts seem to me very strongly in favour of the first of these suggestions. If lupus were originally a blood-disease, it ought, like common psoriasis, to arrange itself symmetrically. Now, I believe that, with the exception of the rare and peculiar form known as erythema-lupus (*L. erythematosus*), it never does so. I have seen many cases of multiple or psoriasis-lupus, but scarcely any in which the similarity to psoriasis was maintained in this particular. On the contrary, the deviations from symmetry are often very great. Thus, you may find one limb severely affected, and its fellow exempt; one cheek covered with lupus patches, and none at all on the other. Psoriasis never does this. Again, we see the resemblance to cancer in the way in which the secondary deposits of lupus are often seen in close proximity, although not absolutely continuous with the original ones. I have often asked attention to this fact in cases of cancer, and appealed to it as evidence that cancer is in the first instance a local disease. The secondary manifestations do not occur at random, and are not manifested with equal profusion at a distance and near to the original growth. Thus, in the case of cancer of the breast, we often find a number of little glossy nodules developed in the skin overlying the tumour. It is impossible to explain why they should be here, and not on the proposed side, on any theory of blood-origin, or, I think, upon any hypothesis whatever, other than that which teaches that they are due to the direct travelling of germs derived from the original infective source. It is precisely so with lupus; we constantly see a number of tubercles produced at a little distance from the border of the original patch, and it is comparatively exceptional to find them spread irregularly over the surface of the body. To these exceptional cases of multiple lupus we may suitably compare the rare examples of multiple cancer, usually the melanotic form, in which the new growth shows itself by a copious development of perfectly distinct tumours. I have seen cases of melanosis in which the patient was spotted over like a leopard with these growths; and in all such I believe they are secondary to an original one.

If we accept this theory of the mode of spread of lupus, we shall have to admit that facts favour the belief, either that individuals differ very much in their liability to permit such spread, or that the nature of the disease-product varies much in its capacity for migration. But neither of these involves any improbability, and they are both of them facts to which we are obliged to make frequent reference in explaining the phenomena of cancer.

You will see that the correctness or incorrectness of this theory is of considerable importance, as indeed all theories are, in its bearing upon practice. If lupus be, as I hold that it is, an infective tissue malady rather than a blood disease, we have a strong additional reason for vigour in the use of those methods of treatment which are likely to eradicate its first local manifestations. We apply to it the same rule that we so constantly reiterate in reference to cancer—"Stamp out the very first indications of flame, in order to prevent the spread of the fire."

Collodion Flexile in Eczema.

DR. HENRY LAWSON, Assistant Physician to St. Mary's Hospital, reports (*Lancet*, June 23, 1877) two bad cases of eczema—one of the genitals and the other of the head—completely cured in a relatively short space of time by flexible collodion. The collodion was liberally painted in successive layers, and Dr. Lawson believes that the artificial covering which it formed completely prevented the action of the air on the Malpighian layers of the epidermis, and thus allowed the upper layers to be formed beneath its protective influence.

SURGERY.

On Surgical Fever after Antiseptic Operations.

DR. BENNO CREDÉ holds (*Centralblatt für Chirurgie*, No. 12, 1877) that in many of the instances in which, after operations performed under antiseptic conditions, there is high fever which cannot be accounted for by local changes, this febrile state is the result of chilling from prolonged exposure of an extensive surface to the cold spray. In order to determine the degree of chilling produced by the antiseptic spray this surgeon made the following observations on two patients who were similarly affected with large lymph-glandular tumours in the inguinal region. The enlarged glands were enucleated and extirpated under antiseptic conditions on the same day, and in the same room the temperature of which was maintained at 52° F. The first patient was uncovered from over the lower margin of the last rib to the middle of the thigh, and on the whole of the surface were directed two carbolic acid sprays, the temperature of which was about 52° F. From a thermometer fixed in the right axilla the temperature was read off every five minutes during the operation. At the commencement of the operation it was 99.2° F.; twenty minutes later, when the dressings were being applied, it was 97.6° F. The pale, prostrate, and cold patient was then placed in a warm bed at noon, and one hour after the operation the temperature was 97° F.; in the evening it was 98.8° F. On the following day the patient complained of headache and was chilly, the morning temperature being 100.4° F., the evening temperature 100.8° F. On the third day the condition of the patient was normal. In the second case the buttocks and lower limbs of the patient were covered by wadding and flannel bandages, and only the seat of operation was left exposed. The fluid of the spray was warmed. At the commencement of the operation the temperature of the body was 98° F. At the conclusion of the operation, which lasted for twenty-two minutes, it was 98.8° F. On the following day the temperature and general condition of the patient were quite normal. In addition to these, other cases are recorded, in order to show the chilling effect of the antiseptic spray. The author states that he is not able from his small experience to assert positively that in every antiseptic operation in which the patient is not carefully protected, a depression of temperature will take place. He allows that the extent of surface exposed and the individual capacity of resistance may vary in different cases. It is shown, however, that chilling may, and often does, take place after antiseptic proceedings. The spray acts most injuriously in this way when it is applied to the head, trunk, or abdominal cavity. When used in the dressing of large wounds of the extremities it may also cause general chilling, especially if the application be prolonged and a considerable surface be exposed and played upon. So long as this chilling is of slight degree the result to the patient is not serious, but if it consist in a lowering by several degrees it may, especially in a patient debilitated by loss of blood, lead to a fatal termination of the case.—*Brit. and For. Med.-Chir. Review*, July, 1877.

On Trephining for Injuries of the Head.

D. S. Pozzi, of Paris (*Archives Gén. de Méd.*, April, 1877), in a recent memoir on "Cerebral Localizations, and on the Relations of the Cranium to the Brain, with regard to Trephining," has supplemented a very clear description of the cerebral convolutions and fissures by some remarks on the bearing of these anatomical data on the operative treatment of head-injuries. After an allusion to the differences of opinion amongst French surgeons as to the expediency of trephining in cases of head-injury in which there is persistent hemiplegia, with an absence of any external lesion, he puts the question whether the surgeon in the application of the trephine can be better or equally well guided in determining the precise seat of the operation by internal in contradistinction to external signs, and whether, disregarding fractures, depressions, wounds, and local signs of contusion and inflammation, he should rather search for a collection of functional signs sufficiently pathognomonic to supply the absence of a local lesion; or, if such exist, to be put in the balance with it, and to modify to some extent the determination of the point to which he might apply the trephine. If similar results occurred in a wounded man as in an animal under experimentation, the surgeon would often find a valuable auxiliary in his knowledge of cerebral localizations. According to the appearance of disturbance in this or that group of muscles, he might determine with precision what particular motor centre had been injured. Unfortunately, things are not so simple on the bed of the patient as they are in the laboratory, as the surgeon cannot control the disturbing phenomena. It is especially to cases of recent traumatism, and to such as require primary trephining, that these remarks apply. On reading the reports of such cases one will be struck with the extent and diffusion of the symptoms and their erratic character under the influence of concomitant concussion and contusion. Cases, in which there is a record of localized convulsions, or circumscribed paralysis, are very exceptional. If, as very often happens, partial convulsions or hemiplegia appear in a more or less rapid manner, these symptoms cannot be regarded as pathognomonic. Indeed, such disturbances of motility have been observed, rarely, it is true, but still positively, after injuries to the temporal and occipital regions which are not in immediate relation with the motor centres. In a case communicated by M. Marvaud to the Société de Chirurgie, a man who had received a gunshot wound in the left temporal region and a compound fracture of the squamous portion, presented, first, convulsive movement of different parts of the body, especially the lower limbs, afterwards right-sided hemiplegia and asphasia, and finally, after an interval of some days, prolapse of the upper eyelid, external strabismus, and dilatation of the pupil on the left side. The first set of symptoms indicated, according to theory based on recent anatomical and physiological data, trephining over the summit of the fissure of Sylvius; and the second set indicated trephining over the third frontal convolution on the left side. M. Marvaud, on the appearance of the third set of symptoms, trephined at the seat of fracture, that is to say, the temporal bone, and with complete success. Immediately after the operation the patient opened his eyes, the prolapse of the left upper eyelid disappeared, the right hand, previously paralyzed, regained its motility, and, finally, the patient, in despite of all theory, made a good recovery. This case indicates that the primary symptoms, and those that occur during the first few days, represent complex lesions due to the propagation to a distance of the effects of traumatism. The circumstances on which are based the indications for secondary trephining are not affected to any great degree by disturbing phenomena. The lesion that gives rise to the symptoms (intracranial suppuration) is evolved slowly and independently, and its effects consequently present a simplicity through which they resemble, up to a certain point, the results of experiments on animals. Indirect experimentation supplied by clinical observation has not, as yet, done much to establish, in the case of man, the certain existence and the exact topography of the motor centres that have been recognized in animals. But one region of the cerebrum can at present be distinguished, viz., the third frontal convolution on the left side,—the so-called convolution of Broca. This is the only region of the surface of the cerebrum, lesion of which can be diagnosed with sufficient certainty to enable the surgeon in his inquiry to be guided solely by rational signs. In a remarkable case reported by M. Broca, the trephine was applied over a purulent collection about the third frontal convolution, symptoms indicating the nature and seat of the lesion having appeared on the twenty-ninth day after an injury to the head. The condition of the patient was much improved for some hours after the operation, but in the course of the same day he became comatose, and died. The autopsy revealed inflammatory softening of the third frontal lobe, and signs of diffuse meningo-encephalitis, which had doubtless started at the seat of the abscess, between the bone and dura mater, near the convolution of Broca. Trephining, as M. Broca states in his report, was resorted to at too late a period, the abscess having already set up irreparable complications. The evacuation of the pus had produced but a temporary amelioration, and the patient succumbed to a diffuse meningo-encephalitis, which could not be removed. According to M. Pozzi, this is the only case that has hitherto presented a real application to surgical therapeutics, of our present knowledge of cerebral localizations, and of cranio-cerebral topography. Recent cases, reported by MM. Proust and Terrillon, and by M. Lucas Championnière, are regarded by M. Pozzi as instances in which the surgical treatment and the seat of trephining were indicated rather by external lesions, such as a wound and fracture, than by any observed relation of symptoms to cerebral localizations. In conclusion, it is argued that, with regard to the treatment of injuries to the head, we cannot, in the present state of our knowledge, expect physiology to throw any light on clinical surgery, but rather the reverse. "A day will come," M. Pozzi believes, "when our scientific knowledge will occupy a higher place than it does at present in the art of healing, and then will the surgeon, instead of giving simple relations of his successes or his failures as *contributions to the study of cerebral localizations*, be able to affix to them this legitimately ambitious title—*trephining guided by the localizations of the cerebrum*."—*British and Foreign Med.-Chir. Review*, July, 1877.

Retropharyngeal Abscess.

At the recent meeting of the British Medical Association Mr. JOHN CHIENE related (*British Med. Journ.*, August 25, 1877) the case of C. M., aged 13, a baker's apprentice, who was admitted April 15, 1877, to the wards of the Edinburgh Royal Infirmary. The patient suffered from acute cervical disease, accompanied by a large abscess pointing in the mouth. Mr. Chiene opened the abscess laterally in the neck, passing behind the right sterno-mastoid muscle and carotid sheath. The case was treated antiseptically. Eight ounces of pus escaped. A drainage-tube four and a half inches long was inserted, and the head fixed with an immovable apparatus. The drainage-tube was removed on June 11, and the sinus closed on July 23. The patient can now move his head without pain. There is irregularity of the spinous processes of the third, fourth, and fifth cervical vertebræ. The posterior pharyngeal wall is healthy. Mr. Lund remarked upon the extreme interest of the case. It was the first he knew of in which a deep abscess connected with disease of the cervical vertebræ had been treated upon antiseptic principles. It added another to the many examples of successful healing after abscesses had been opened on this plan. He inquired as to the quantity of pus evacuated. Mr. Rivington (London), without personally advocating the use of the aspirator, asked if the author had ever used that instrument through the mouth in such cases, and what his experience was with regard to its use in abscesses connected with bone. Mr. Chiene replied that eight ounces of pus were removed. He had never used the aspirator in psoas or lumbar abscess; while tension was relieved for a time by it, pus reaccumulated again and again, and death was the ultimate result. Mr. Lennox Browne (London) asked if the method of extreme distension had been used with success in any of these cases. Mr. McGill (Leeds) inquired as to the length of time requisite for recovery after opening abscesses connected with bone—was it months or years? Antisepticity seemed to do away with surgical fevers. Mr. Anstie (Devizes) narrated a case of large lumbar abscess in which he used the aspirator with great success, indeed, with the result of saving life, which was seriously threatened before its use. The sinuses quite closed in seven weeks. Dr. Emrys-Jones (Manchester) found that the aspirator-tube was always plugged when the pus was at all curdy. There was no definite time laid down by Mr. Lister (whose practice he had closely watched) for the healing of abscesses opened on his principle, but the principle was good and the method satisfactory; the saving of life, indeed, was its result. Mr. Chiene could not lay down any rule as to the time of healing; it was not a definite one: it was longer in the case of abscesses connected with scrofulous disease of bone than in others. The saving of life ultimately was a great and sufficient object.

Two Cases of Aneurism of the Abdominal Aorta: one cured by the Administration of Iodide of Potassium, the other by Arterial Compression.

Dr. G. H. Philipson, of Newcastle-upon-Tyne, reported at the late meeting of the British Medical Association (*British Med. Journ.*, August 25, 1877) the following cases: The first patient was a labouring man, aged 26, with a negative history of syphilis, who was considered to have aneurism of the abdominal aorta, near its bifurcation. The aneurism was believed to be of the lateral sacculated variety, enlarging to the left. The treatment employed was the maintenance of the horizontal position in bed, the administration of iodide of potassium, and the ordinary meat diet. The iodide of potassium was commenced in doses of ten grains three times each day, and was increased to forty grains for each dose. After seven weeks of treatment, it was found that the pulsation had disappeared, and that the murmur could not be heard. He resumed his occupation after seventeen weeks. The second case was that of an iron-shingler, aged 25, with a history of previous syphilis. The aneurism was regarded as one of the abdominal aorta, situated near the bifurcation, of the lateral sacculated variety, and enlarging to the right. The treatment was quiescence in bed in the recumbent position, the administration of the iodide of potassium, and the ordinary meat diet. The iodide was commenced in doses of ten grains three times each day; it was increased to forty grains for each dose, and was continued for five weeks. The pulsation was only diminished; it was determined, therefore, to employ arterial compression. Lister's abdominal tourniquet was applied to the abdominal aorta four inches above the umbilicus, upon three occasions: upon the first for half an hour, upon the second for three-quarters of an hour, and upon the third for one hour and a half. Upon each occasion, the patient was fully under the influence of an anaesthetic: upon the first and second, of chloroform, and upon the third of chloroform and ether. About forty-eight hours after the third application, the aneurism solidified, the size being estimated about equal to that of an ordinary cricket-ball. Three weeks afterwards, the tumour had wholly disappeared, and no evidence of the aneurism was discernible. In both, the lesion of the arterial coats was looked upon as inflammatory in nature, and not as atheromatous. In the treatment, whether constitutional or mechanical, the principle was recognized that it is necessary for the circulation to be enfeebled or impeded in order that the aneurismal sac may become filled with the constituents of the blood, and, in process of time, rendered impervious. The term constitutional treatment was considered to include the dietetic, medicinal, and postural requirements. In the first case, the result was gained by constitutional treatment alone; in the second, by mechanical treatment after the constitutional treatment had been unprofitable. The effect of the administration of the iodide of potassium, in association with rest and regular diet, in the first case, was conjectured to have been the gradual filling with the constituents of the blood and in the subsequent shrinking of the aneurismal sac, but without the obliteration of the aorta. In the mechanical treatment—that by the application of pressure—more than this was effected; for it might be assumed that the current of blood along the aorta, and thence into the aneurism, was either wholly or in a great measure arrested. The interval of time that elapsed between the compression and the consolidation would be in favour of the supposition that laminated fibrin was first deposited and coagulum subsequently superadded, filling the aneurismal sac and blocking the aorta. This was the explanation that was offered. If it be admitted that the supposition was correct, it is unnecessary to apply pressure wholly to interrupt the circulation, but rather that the circulation should be impeded; moderate compression should be employed to lower the force of the circulation; and the mechanical treatment should be in accord with the constitutional treatment. The conclusion deduced was, that aneurismal tumour of the lower portion of the abdominal aorta may be successfully treated by arterial compression on the cardiac side of the aneurism, but that the method was dangerous, and should not be employed until the constitutional treatment had failed; and that, if arterial compression were employed, it should be moderate and prolonged rather than complete and of short duration.

The Surgical Function of the Omentum.

In an interesting paper read before the Medico-Chirurgical Society of Edinburgh (*Edin. Med. Journal*, July, 1877), Dr. KENNETH M'LEOD, Surgeon-Major Bengal Medical Service, lays down the proposition that, in penetrating wounds of the abdomen of small size, the omentum is prone to protrude, and, protruding, acts as a plug which stops up the wound, and prevents the protrusion of the other viscera contained in the cavity, and, in so doing, subserves a most important surgical purpose.

Dr. M'Leod has collected, for the purpose of study, the notes of 57 cases of abdominal wounds. He finds that while omental protrusions are liable to take place from any point in the anterior and lateral walls of the abdomen, and even through wounds of the lower chest wall, they are more liable to occur in the umbilical region, more common below than above the umbilicus, and more frequent on the left than on the right side.

This conservative action of the omentum Dr. M'Leod finds extends to wounds of the diaphragm and of the intestine.

A study of the natural history of these protrusions shows that they appear always to take place immediately after the injury has occurred.

The treatment of omental protrusions depends mainly upon the time which has elapsed since the protrusion took place; but the nature and position of the wound, the amount and condition of the protruded mass, the degree of constriction to which it is subjected, and the symptoms which have arisen, are also points of importance.

1. In recent and reducible cases where the omentum is uninjured, surgical authorities[1] are agreed that the hernia should be reduced after washing, if necessary, and the wound carefully stitched up.

2. As regards recent irreducible cases, authorities are not so unanimous. The obstacle to reduction is the constriction caused by the wound, and the practical question comes to be, Should the wound be enlarged to permit of reduction or not? Reduction is not, it will be observed, so imperatively necessary as in the case of the hollow viscera, or even of the other solid organs. The risk of enlarging the wound is, of course, hernia. Against this may be placed the painful symptoms that may be caused by strangulation, for whose relief some surgeons counsel enlargement of the wound without subsequent reduction. Again, some authors make the size and amount of the protruded mass a ground of difference in dealing with it. A small protrusion does not take so long to disappear when left to itself as a large one, and in the latter there is greater risk of a bit of intestine being inclosed, or of uneasy sensations or functional disturbance of stomach or bowels being caused by dragging. Although enlargement of the wound and reduction have been practised with success, Dr. M'Leod should incline in this class of cases to leave the protrusion alone, unless suspicion of a piece of bowel being included existed, or uneasy symptoms appeared, in which circumstances relief of the constriction or enlargement of the wound and reduction might be advisable. Guthrie points out that the obstacle to reduction is in the wound of the skin and aponeurosis, and not in that of the peritoneum, and he advises enlargement of the former, proceeding afterward as in reducible cases. Both ablation and ligature, separately and combined, have been put in practice, and have resulted in cure; but Bryant's advice to wait for two weeks until adhesions shall have formed at the neck of the tumour, and then remove by single or double ligature or excision, or by both methods combined, commends itself as judicious and consistent with what we know of the pathology of this condition. If reduction is practised, antiseptic precautions are certainly indicated; and, even if Bryant's plan be followed, their adoption would, to say the least, do no harm. A prolonged and violent taxis would in any case be obviously improper and unsafe.

3. When the omentum is bruised or lacerated, its reduction in this condition would obviously be wrong, and the question remains whether it should be left as it is, the torn and bruised parts removed, and the rest reduced, or the whole excised with or without previous ligature, or simply ligatured at the level of the wound. Each plan has been practised successfully. Deliberate strangulation by

---

[1] Boyer, Ravaton, Larrey, Samuel Cooper, Guthrie, Ballingall, Syme, Chelius, Gross, Hamilton, Erichsen, Pollock, Otis, Bryant.

[illegible] of removal of protrusion is not good practice. Pipelet gives instances [illegible] and Lawrence and Sir Astley Cooper, both high authorities, disapproved of the operation in the closely analogous case of epiplocele. Ablation, [illegible] replaced portion, seems unnecessary; and, on the whole, Dr. M'Leod would rather, with Larrey, Guthrie, and others, leave the case to nature, [illegible] away pieces if needful, or, with Bryant, wait till adhesions have formed, and then ligature at the neck, and excise the mass beyond [illegible] system.

4. In [illegible] strangulated recent protrusion, the alternatives are—(a) reduce the [illegible] (b) to relieve the stricture; or (c) to excise or ligature. Returning a congested or semi-strangulated omentum into the abdominal cavity is out of the question. Relieving the constriction by enlarging the wound would only be necessary or advisable when symptoms existed demanding such relief. Incising the congested mass might give ease, and perhaps prevent extension of inflammation inwards. The same objection obtains to ablation or deligation of it in any recent case where adhesions have not so far placed the mass outside the peritoneum. Syme, in condemning the practice of ligature in the parallel case of hernia, pithily remarks that it would amount to relieving the patient from the effects of one stricture and exposing him to those of another still tighter. Relief of the stricture, or removal after adhesion had formed, are, Dr. M'Leod submits, the only justifiable modes of interference in such cases.

5. When the protrusion has become pancreatized (so to speak) by inflammation, and adhesions have united its layers together, and its neck to the lips of the wound, it may either be left alone or removed. If left alone the case is more tedious. Removal by knife or string, or both, are safe enough, but should be done antiseptically. The mass has now become practically extraperitoneal, and peritonitis is not so dangerous as in recent cases. Perhaps, if it is decided to remove the mass, the knife or ecraseur is preferable to the ligature, bleeding vessels being of course carefully secured.

6. When suppuration has taken place in the hernial mass, incision is obviously indicated. The case should, in fact, be treated as any other abscess, or, if adhesions have formed and the matter is outside of the abdominal cavity, removal of the whole mass may be practised.

7. When the protrusion is gangrenous in part or in whole, if adhesions have cut it off from the abdominal cavity, it may be either left to nature, or removed by knife, ecraseur, or ligature. If there is any doubt as to adhesions having formed, the propriety of interference is more than doubtful. If removal is practised, antiseptic precautions should be adopted.

From all the evidence and considerations which Dr. M'Leod has now adduced, he thinks that the protective function of the omentum in penetrating abdominal wounds, and to a more limited extent in intestinal lesions, has been fully established. He would submit that, in cases of wounds perforating the abdominal parietes, surgeons would act wisely in not interfering too rashly with the beneficent operation of this organ, or even in endeavouring, if practicable, to interpose between the hollow viscera and the parietal wound, that organ which normally covers them, and seems intended to shield them from the baneful effects of extrusion or inflammation. The mortality of penetrating abdominal wounds is so great that any measure giving promise of reducing it is worthy of very special attention.

Extirpation of the Spleen.

PROF. BILLROTH, in his clinic at Vienna, lately excised a spleen, the patient being a man about forty years of age. The organ was extremely adherent to the surrounding textures, and great hemorrhage followed its extraction. After ligaturing the larger vessels, the galvano-cautery was applied to restrain the bleeding from the smaller ones. The patient, however, lost so much blood that he expired shortly after the completion of the operation. Upon weighing, the spleen was found to be 14 lbs. This is the second time that the same surgeon has performed splenotomy within the last six months; the result in both cases was the same.—*Brit. Med. Journ.*, July 28, 1877.

Extirpation of the Kidney.

Dr. C. LANGENBUCH, Director of the Lazarus Hospital at Berlin, records (*Berliner Klinische Wochenschrift*, No. 24 1877), the following case of successful extirpation of the kidney.

Mrs. B., aged thirty-two, applied for relief at the hospital on November 10, 1875, on account of a painful tumour in the left side. She stated that for the last eighteen months she had suffered from dull pain in the region of the left kidney, which had rapidly increased in the last three months, and had become so intolerable that she earnestly begged that something might be done for her. Within the last three months she had also first discovered the existence of a tumour. It should be noticed that her appearance was that of a strongly built and healthy woman.

On examination of the left renal region, inspection revealed nothing abnormal; but palpation at once detected a somewhat superficial tumour, apparently in front of the left kidney, but partly embedded in the lumbar muscles. It was a hard, tolerably smooth, globular body of about six to eight centimetres in diameter, tender on pressure, and which could be seized by the fingers pressed deeply down, as well as traced inwards for some distance, and moved to a certain extent from side to side. The patient stated that this tumour was the source of all her pain.

The diagnosis made was that of a new growth, probably a sarcoma, fibroma, or myo-sarcoma, springing from the connective tissue between and around the left lumbar muscles, or else from the muscles themselves. In spite of the pain, cancer could almost certainly be excluded by the appearance of the patient, whose hearty appetite and general state of health and vigour were strongly opposed to the idea of malignant disease. The condition of the urine seems to have to some extent diverted attention from the possibility of the tumour being of renal origin. The urine had its normal colour and specific gravity, and was completely free from blood, albumen, or any abnormal constituent or deposit. It was determined to extirpate the tumour, and the operation was performed on December 7. A careful examination of the tumour under chloroform immediately beforehand seems to have led Dr. Langenbuch to somewhat modify his opinion of its nature, and to think that after all there might be some connection between the supposed growth and the kidney. The incision in the skin was made parallel to and about six centimetres from the spinal column, from the angle of the twelfth rib to the crest of the ilium After dividing the subcutaneous cellular tissue and the superficial muscular fibres, the exterior of the tumour could be reached with the finger, but it was difficult to isolate it from the tissue of the surrounding muscles (sacrolumbalis and quadratus lumborum), with which it was connected by a tough cicatricial tissue, inclosing here and there a nodule of fat. After cutting completely through the quadratus lumborum, from which point onwards the finger alone was used to isolate the "growth," the termination of the latter in a "hilus-like cord" was finally reached. The latter was then ligatured and divided, though with some difficulty, owing to the great depth of the wound, and the tumour removed. The cord to which the ligature was applied, under the first impression that it was a large bloodvessel, turned out on closer examination to be the ureter, a thick-walled tube with a lumen about equal to that of the carotid artery. A moderate sized bougie could be passed down it into the abdominal cavity for a distance of fifteen centimetres. The operation was conducted throughout with all the precautions of Lister's method, and the patient made an excellent recovery, which was only retarded by the rupture of the skin sutures, owing to incautious exertion on the part of the patient. She left the hospital, completely cured, in the beginning of January, 1876.

Unfortunately, she left Berlin shortly after without giving her address, and she has been lost sight of from that time. The condition of the kidney (for such it was) which was removed was as follows: The whole organ (8 centimetres long, [illegible] centimetres broad, and 2-5 centimetres thick) was converted into a cavity whose walls consisted of a tough cicatricial tissue, the exterior of which still exhibited scattered remains of the fat in which the organ is normally embedded. The interior was lined with reddish floating shreds, the remains of the pyramidal substance. No microscopical examination of the kidney was possible, as, owing to the carelessness of a servant, the fate of many other pathological curiosities befell it, and it was thrown away. Dr. Orth, however, from a previous naked-eye examination, was able to state that the cyst-wall mainly consisted of fatty degenerated tissue with a fibrous layer externally, but that he could form no opinion of what the previous state of affairs had been. For Dr. Langenbuch's speculations as to the possible course of events in this case we must refer those interested to the original paper.—*Med. Times and Gazette*, July 21, 1877.

On the 7th of June, at the Leeds Infirmary, Mr. JESSOP removed the left kidney from a child aged two years and three months. The first noteworthy symptoms were haematuria and irritation of the bladder, but several soundings for stone gave negative results. The child, however, lost flesh, and became more and more pallid. About two months ago, a rapidly increasing tumour was discovered in the left renal region, and as the indications were those of malignant growth Mr. Jessop determined to cut down upon it, and, if possible, to remove it. The incision was similar to that recommended for colotomy, but longer. When the diseased mass was reached the kidney was peeled by means of the fingers, and a whipcord ligature was passed around the vessels and ureter, and firmly tied. The remainder of the growth was afterwards stripped away, and the whipcord left to drain the wound. The operation was a formidable one owing to the large size of the diseased organ and the free venous hemorrhage which followed the separation of the growth from the surrounding structures. When removed the kidney weighed sixteen ounces, and resembled encephaloid in appearance. The child was doing well on the 11th inst. There was no peritonitis, the bowels acted freely and the urine flowed abundantly, and was not stained. There was no vomiting, the temperature was but little above normal, and the child partook freely of milk. Mr. Jessop has kindly promised to publish in due course a detailed account of the case. On going to press we learn that the symptoms in the case are all favourable.—*Lancet*, June 17, 1877.

There have been now recorded 16 cases of extirpation of the kidney, of which 8 recovered and 8 died. The case referred to by Mr. Spencer Wells (*Med. Times and Gaz.*, Jan. 8, 1870, p. 45) is not included from want of sufficiently accurate data. The notes of the other cases have been published in the numbers of this Journal for Jan. 1873, p. 277; July, 1874, p. 266; Jan. 1875, p. 282; April, 1876, p. 586, and July, 1876, p. 281.

On the Treatment of Irreducible Luxation by Incision.

The following case is recorded by Dr. H. R. RANKE (*Berliner Klinische Wochenschrift*, No. 25, 1877) for the purpose of supporting the view that it is justifiable in cases of irreducible luxation to expose under the antiseptic spray the seat of the injury, and, if necessary, to excise the injured joint. The patient was a workman, aged 52 years, who came under the care of Dr. Volkmann, with an irreducible perineal luxation of the head of the right femur, of two months' duration. No attempt had previously been made to replace the head of the bone. Dr. Volkmann tried on several occasions manipulation to reduce the luxation, but without success; although the head of the femur could be moved from the perineum to the back of the ilium. The perineal luxation having been converted into an iliac luxation, the lower limb was then extended by weights, and kept at rest for six weeks. At the end of this period. as there was still much deformity, and the limb remained quite useless, it was decided to expose the joint with the view of removing any obstacle to reduction, or, this failing, of performing resection of the displaced portion of bone. The head and neck of the right femur were well exposed by a long incision made, as in resection, over the great trochanter. No obstacle to reduction could be discovered. The tendons of the muscles passing to the great trochanter were then divided, but without any good result. The head of the femur remained fixed in its abnormal position, and could not, in spite of frequent attempts, be returned to its cavity. No proper capsule was observed, but the soft part immediately around the joint had become callous and indurated. After further dissection the head of the femur was so far isolated that it could, through adduction of the limb, be forced out from the wound. There was then found stretched over the acetabulum, and closely adherent to the margins of the cavity, a thick mass of muscle, the more superficial layers of which had undergone fibrous induration. As it was thus found useless to make any further attempt to replace the head of the femur in the acetabulum. Dr. Volkmann removed this portion of bone, together with the great trochanter. The operation was performed under the antiseptic spray, and the wound, after the removal of the displaced head of the femur, carefully washed out with carbolic acid solution, drained, and subsequently dressed with Lister's gauge. After the patient had been removed to his bed, the right lower limb was extended by a weight of ten pounds. The man made a rapid recovery, the wound healing by first intention, and with the absence both of local reaction and of surgical fever. After long-continued extension by weights, there was found to be but little difference in the length of the right as compared with that of the left lower limb. Nine months after the operation, the patient was able to make very good use of the limb in locomotion. The direction of the foot was normal, and the movements, active as well as passive, of the lower limb at the hip could be performed with considerable freedom.—*London Med. Record*, Aug. 15, 1877.

Acute Tuberculosis of Synovial Membrane.

M. Laveran, of the Val de Grâce Hospital, records (*Le Progrès Med.*, Oct. 25th) the following instructive case: A young soldier, twenty-two years of age, who had served only eight months, was admitted into the hospital on June 21st, 1876. He was well nourished, but had never been robust, and had in infancy suffered from an attack of right-sided pleurisy. Six days before his admission he began to suffer from painful swelling of the ankles and knees, the latter being tender and the seat of much effusion, especially the right. There was but slight pyrexia, and no cardiac complication. The case was regarded as one of subacute rheumatism, but on the next day the temperature rose to 102.2°; the patient began to suffer from cough; there was some dulness at both pulmonary bases, pleuritic friction at left base, and sibilant and mucous râles over the whole chest. From this date onwards the pulmonary signs became more marked, with increasing dyspnœa, cyanosis, and a temperature ranging from 102° to 105°. Death took place on July 4th, fifteen days after admission, and twenty-three days after the first onset of arthritis pain. The post-mortem examination revealed acute miliary tuberculosis, the pleura, lungs, peritoneum, liver, spleen, and kidneys presenting gray granulations in abundance. Four larger tubercular masses, composed of aggregated granulations, occurred in the pons and medulla, but did not appear to implicate any nerve-roots. There was no meningeal tubercle. Both knee-joints were examined; in each there was an excess of transparent synovia, most in the right, and the injected synovial membrane, with its fringes, was in each joint studded with slightly elevated grayish granulations, the size of a pin's head. Under the microscope the tubercles were found to arise in the deeper layers of the synovial membrane, and to present a central granular opacity, with a marginal zone of nucleated cells. Giant cells, of round form, granular contents, and oval nuclei along their margins, occurred in the centre of every granulation. These articular granulations precisely resembled in structure the miliary tubercles infiltrating the lungs and other organs. M. Laveran draws attention to the occurrence of arthritis as the first symptom of a general tuberculosis, and that of so predominant a character as to lead to a mistake in diagnosis, which was rectified as the pulmonary signs became more marked. He believes that the articular pains frequently complained of by the subjects of acute tuberculosis, are probably indicative of the implication of the synovial membranes in the disease; and, further, that some fatal cases of "acute articular rheumatism," accompanied by pleuritis, meningitis, etc., may really be of tubercular nature. The apparently older date of the masses in the pons and medulla in this case was, he believed, simply due to the nodules being formed by the coalescence of a large number of granulations similar to those found elsewhere in the body, and that the outbreak was, in fact, nearly simultaneous in all parts. The instance of a chronic pleurisy with adhesions on the right side was the only evidence of antecedent disease in this case.—*Lancet*, July 28, 1877.

On Infra-patellar Hygroma.

According to Prof. TRENDELENBURG, of Rostock (Von Langenbeck's *Archiv für klinische Chirurgie*, Bd. xxi., Heft. 1), dropsical distension of the deeply-seated infra-patellar bursa cannot be regarded as a very rare affection. Two cases of this form of hygroma are reported, and a description is given of its symptoms. The infra-patellar bursa, the contours of which are too small, under healthy conditions, to be distinctly seen or felt, forms, when distended by fluid, a well-marked tumour. The distension of the bursal sac takes place chiefly in the upward and lateral directions, an abnormal protrusion being thus formed on each side of the ligamentum patellae. The change thus produced in the external form of the knee may escape notice if the corresponding bursa in the other limb be similarly affected. The lateral swellings are best marked when the leg is semi-flexed. In this position of the limb each of the lateral depressions that are observed under normal conditions is replaced by a prominent fluctuating tumour. In cases of hygroma of this deeply-seated bursa, flexion of the leg cannot be caused to its full extent. In hydrops genu, on the other hand, flexion at the knee is not interfered with, even when there is considerable intra-articular effusion. There is usually some tenderness in the region of the swollen bursa, and some pain and a feeling of stiffness in front of the knee after active movements of the leg. The author made out in each of his cases a tender spot at the inner side, and just above the level of the tubercle of the tibia. Pain often comes on spontaneously in the affected region, and the patient complains at times of a sensation of tension below the patella and of weakness of the joint. There is slight lameness, and the affected limb speedily becomes fatigued after exercise. In advanced cases there is a constant feeling of uneasiness in the knee-joint, perfect rest of the whole limb giving no relief. In a female patient having a thick layer of subcutaneous fat the bursal swelling may fail to be distinctly made out, so that the nature of the case may be overlooked, and the subjective symptoms be regarded as those of an articular neurosis. The progress of infra-patellar bursa is usually very slow. The treatment recommended by the author is that of compression of the affected region by means of Esmarch's elastic bandage.

In the concluding portion of his contribution Prof. Trendelenburg states it as his opinion that the pain and tenderness in the infra-patellar region, so often complained of after injury to the knee, may be due to an hæmorrhagic or an acute serous effusion into the deep-seated bursa.—*British and Foreign Med.-Chir. Review*, July, 1877.

The Operative Treatment of Genu Valgum.

The following case, described by Dr. A. Ogston, in the *Edinburgh Medical Journal* for April, illustrates, in a bad case of knock-knee, a means of treatment hitherto untried, but which yielded on both legs results so perfect as to warrant its being recommended in similar cases.

The patient was 18 years of age; and, since an attack of typhus when seven years old, the deformity began to develop itself and to present a most exaggerated appearance, and all treatment by splints or apparatus was utterly futile.

The patient was chloroformed, and the left knee flexed as far as possible, and the thigh turned outwards. A long and strong tenotomy-knife (Adams's) was introduced through the skin, three and a half inches above the tip of the internal condyle on the inner side of the thigh, and so far back as to be opposite the ridge of bone running between the linea aspera and the condyle. Its blade was carried forwards, downwards, and outwards, over the front of the femur, with its cutting edge directed to the bone. When its point could be felt under the skin, in the groove between the condyles where the patella would normally have been lying in the flexed position of the limb, the cutting edge was pressed against the bone, and the soft parts and periosteum divided by one slow firm movement in withdrawing the knife. The external wound thus made was about one-third of an inch long, and formed the entrance to a subcutaneous tunnel, running obliquely over the front of the femur, and ending in the cavity of the joint. Adams's saw for subcutaneous division of the neck of the femur was introduced into the tunnel, and the condyle sawn off by directing the edge of the saw straight backwards. The position of the saw could be exactly controlled, by feeling its point working gradually backwards in the groove between the condyles. As soon as it was estimated that the condyle was almost entirely separated, and that the saw had arrived near the popliteal space, the saw was withdrawn. The knee was completely extended, and then with the hands, and the operator's knee as a fulcrum, the patient's knee was forcibly straightened by bending the leg inwards. The remaining connections of the condyle with the femur gave way with a crack on the application of very moderate force, and instantly the leg became as straight as a healthy limb, and could even be put in a somewhat bandy (genu varum) position. The whole of the operation was conducted under carbolic spray, with a minute observance of Lister's antiseptic precautions, and the limb was put up in antiseptic dressings. It was then simply bandaged to a Liston's long splint, the thigh and leg being kept in the same line by pads, and the boy was placed upon a hard mattress.

The reaction was almost *nil*. The temperature, carefully taken, never rose above 99.8°. The joint, at first filled with blood, never became hot or tender, and on June 2 the splint and bandages were discontinued, and passive motions commenced.

On June 6, the other knee was operated on in the same manner, with an equally favourable result, the temperature never rising above 100°. The splint and bandages were removed on June 21, and passive movements commenced.

The movements were continued on both limbs for a month, and were at first attended by crackling and grating, as if from rough displaced cartilages, whenever the knees were flexed to a right angle. There was never any pain, and the movements became steadily smoother until, on July 9, seven and a half weeks after the operation on the left knee, and less than five weeks after that on the right knee, he was allowed to rise and walk. The movements speedily became normal, and he was dismissed, walking perfectly, on July 21. The patellæ were even then tending to assume a more normal position.—*London Med. Record*, July 15, 1877.

OPHTHALMOLOGY AND OTOLOGY.

On Amblyopia and Amaurosis after Hemorrhage.

VON OETTINGEN in this paper (published in the *Dorpater Medicin. Zeitschrift*, Band vi.), which cannot fail to interest all ophthalmologists, acknowledges the great service done to ophthalmology by Dr. S. Fries, who collected and published 106 cases of this kind. In 96 of these, Dr. Fries states the nature of the hemorrhage: in 34 it was intestinal; in 24 uterine; 24 were cases in which bleeding was employed as a therapeutic measure; in 7 cases the bleeding was from the nose, in five from wounds; 1 was a case of hæmoptysis; and in 1 the blood came from the urethra.

Dr. von Oettingen then gives the details of a case of amaurosis following bleeding from the urethra, which was almost identical with Fries's case. This patient stated that the bleeding continued for several days at intervals, a cupful of blood being lost at a time; that he then became very weak, and passed into a somnolent half-conscious condition; and that when he recovered from this state he found that he was blind.

The author then compares his case with Dr. Fries's case. In both, the patient was a strong, apparently healthy man, without any obvious cause for the bleeding; but in Dr. Fries's case it continued for several months at intervals, and was followed by loss of consciousness and delirium. In both cases, on awaking from this condition, the highest degree of amblyopia was manifested. In both cases, the ophthalmoscope showed a white atrophied disk, with the characteristic leaden tinge, thread-like arteries, and somewhat angular outline; lastly, in both cases, the injection of strychnine gave some temporary improvement.

The remainder of the paper is a critical examination of the probable nature of the relation of amblyopia and hemorrhage. The writer considers that there can be no doubt but that the causal connection cannot be direct, since the retina is known to retain its function in an unimpaired condition in extreme anæmia, as well as in the acute ischæmia which occurs in the stage of asphyxia in cases of cholera.

He divides the cases of amblyopia after hemorrhage into two groups: first, those in which the blindness occurs immediately after the loss of blood; and secondly, those in which it supervenes after an interval of some days.

In the first group of cases, he thinks that the blindness is produced by an increased quantity of cerebro-spinal fluid, with dilatation of the ventricles and œdema of the brain-tissue; conditions which have been shown to result from the rapid withdrawal of blood from the cranial cavity by direct experiment. In such cases, the loss of vision is always accompanied by other and serious brain-symptoms.

In the second group of cases, he considers that fatty degeneration of the smallest arterioles and capillaries, which Virchow has shown to be liable to result from continued hemorrhage, is the primary cause of the lesion of the organs of vision. He thinks that the altered nutrition of the neighbouring parts, the result of the diseased walls of the vessels, is in some cases the cause of the blindness. In other cases, he thinks the walls of the vessels ultimately give way, and small clots result in some part of the nervous tract concerned in vision, either in the retina itself, in the optic nerve, or in the nerve-centres.—*London Med. Record*, July 15, 1877.

Drainage of the Eye by Catgut.

M. de WECKER, who introduced the use of drainage in ocular therapeutics, has of late successfully employed catgut for this purpose. He has used it in cases of glaucoma, detachment of the retina, and corneal and sclerotic staphylomas. The catgut he uses is preserved in carbolated oil, and after the fat has been dissolved out with ether, it is carefully dried. A single or double thread of it is then passed through the eye, and lightly knotted in front. It falls off, in children, at the end of three or four days, and in adults after six or seven days. An active filtration without symptoms of irritation takes place at the points of entry and exit of the thread. M. de Wecker claims that by this treatment the intra-ocular tension can be reduced much more efficaciously than by iridectomy.

Dr. Nicati has studied experimentally the influence of drainage by catgut on the eyes of animals, and draws the following conclusions from his observations:—

1. Drainage by catgut, introduced across the equatorial region of a healthy eye, diminishes its tension to a considerable extent, and for a period as yet undetermined. Drainage of the anterior chamber has a much less pronounced durable influence on the intra-ocular tension.

2. The catgut is dissolved in a few days in the fluid of the conjunctival sac, but in the vitreous humor, the aqueous humor, and the cornea, it takes a long time to disappear.

3. The absorption of the catgut is preceded by a vascular new formation in the vitreous humour and the cornea.

Dr. Nicati believes that the happy results obtained by M. de Wecker in the treatment of anterior staphyloma by drainage are due to the development of a sclerosis consecutive to the marked vascularization of the cornea, the sclerosis being developed while the tension of the eye was diminished.—*Med. Record*, August 18, 1877, from *Gaz. des Hôpitaux*, June 28th.

On Relaxation of the Membrana Tympani.

Dr. M. STIFLER, of Munich, discusses, in the *Aertzliches Intelligenz-Blätt* of July 18th and 25th, the subject of relaxation of the tympanic membrane. Rupture of the tensor tympani, pressure from ceruminous accumulation, or foreign bodies, and spontaneous atrophy of all the layers, have been given as causes of abnormal relaxation. Stifler says that all affections of the middle layer are secondary to some affections of the dermoid or inner layers; and that anything which causes development or increase of the vessels of these layers, infiltration, and exudation, capillary compression, or partial obliteration of the vessels, may cause softening, molecular disintegration, and absorption of the fibrous layer, and so greater or lesser perforation. These conditions are seen under circumstances which are combined with a hyperæmic state of the membrane, either acute or chronic: and it is "mostly in the later stages of hyperæmic conditions that atrophy comes on," in increased concavity of the membrane, in acute or chronic myringitis, in superficial ulcerative processes of the dermoid layer, and in mucous or purulent accumulations in the cavity.

The symptoms are great transparency, great mobility even in motion, with respiration and pulsation, tinnitus, vertigo, deafness.

The treatment generally recommended is the use of Politzer's method of inflation, astringents, incisions of the membrane, and myringectomy. The results which Dr. Stitler obtained were satisfactory, the change of the position of the membrane being seemingly sufficient to cause the improvement.—*London Med Record*, July 15, 1877.

MIDWIFERY AND GYNÆCOLOGY.

The Relation between Erysipelas and Puerperal Fever.

Dr. ATTHILL records (*Medical Press and Circular*, April 25, 1877) the serious effects which followed from the admission of a patient suffering from erysipelas into the Rotunda Hospital. During the winter of 1876–7 the mortality in the hospital had been very low. On the 15th of February, a woman suffering from erysipelas in the head and face was sent to the hospital in labour, and was injudiciously admitted. She was placed by herself in a small ward, adjoining the large ward No. 2, which was also empty, having that morning undergone the usual process of cleaning. Shortly after admission she was delivered, and next morning, although to all appearance doing well, she was sent by Dr. Atthill's direction to the Hardwicke Hospital, so great did he consider the danger from her presence to the other puerperal patients. All the bedding was then removed to be washed and stoved, and the ward itself was fumigated and then left unoccupied for some weeks.

On the 16th and 17th, after the removal of this patient, six patients were admitted into No. 2 ward, separated from that in which the case of erysipelas had been by a small ward, occupied by one of the patients, the three wards opening directly off each other. Five of these patients suffered from severe symptoms of puerperal peritonitis, and two were alarmingly ill, but all eventually recovered. The only one who altogether escaped was a case of abortion in the third month of pregnancy. On the afternoon of the day on which the erysipelas case was delivered, four patients were admitted into No. 1 ward, which is on the opposite side of the corridor to the ward occupied by her, and further separated from it by the width of the staircase. Two of these merely complained a little, a third had symptoms similar, though in a less marked degree, to those exhibited by the patients in No. 2 ward; the fourth, a very delicate woman, who had been ailing before admission, was attacked in a similar manner and died. Thus of ten patients admitted into a hospital, of which the sanitary conditions had, previous to the admission of a case of erysipelas, been most excellent, nine were attacked with illness more or less severe, and one died, the only one who escaped being a case of abortion.—*Obstetrical Journal of Great Britain*, June, 1877.

Cæsarean Section after Death; Delivery of a Living Child.

Dr. BUCKELL, of Winchester, reported to the Obstetrical Society of London (*Med. Times and Gaz.*, July 21, 1877) the notes of, and showed the viscera of a case in which Cæsarean section was performed twenty to thirty minutes after death. The child was saved. The mother died suddenly of dilatation of the aorta, rendering the aortic valves incompetent. At the post-mortem examination the viscera of the chest and abdomen were found to be transposed.

The President thought the case of interest, as showing that a child could be recovered a considerable time after the death of the mother.

Dr. Aveling said that it is believed that a child may be born alive an hour after the mother's death.

Dr. Playfair said he knew of one case in which a live child was born half an hour after the death of the mother.

Dr. Routh said that much depended on the cause of the mother's death. He had performed Cæsarean section in a case of death from apoplexy, but the child was dead from carbonized blood.

Dr. Daly saw Cæsarean section done twenty minutes after rupture of the uterus, but the child was dead.

Puerperal Infection in New-born Children.

In the *Archiv für Gynäkologie*, B. x. H. 3, Professor Hecker gives his experience of the transmission of puerperal infection to new-born infants. He has had rich opportunities of observing such maladies, since of 281 infants who died in the Munich Lying-in Hospital 138, or 63 per cent., perished from the result of infection. When puerperal diseases were prevalent among the mothers, the mortality was high among the children, and the infants of mothers who died from septicæmia often perished also, and showed at the autopsy lesions of a similar nature. Some children, however, perished when the mothers had passed through the puerperal state in a perfectly normal manner. In many of these the umbilicus was the probable place of infection, which might have been communicated from the patients in the hospital. The disease commenced at a time when the funis had fallen off, and a wound capable of absorption therefore existed; also in uch cases were commonly found local lesions, such as gangrene of the umbilicus, phlebitis of the umbilical vein, and secondary peritonitis. There are other cases, however, to which this explanation cannot apply—namely, those of children whose mothers remain healthy, but who, soon after birth, and before the funis has even become dried up, are attacked by puerperal infection, and rapidly die, often in so short a time as twenty-four hours. In these cases no lesion is found in connection with the umbilicus, but signs of general septicæmia, with perhaps localization in the lungs. The author considers that it would be an arbitrary assumption to suppose that infection in these cases is conveyed through the funis, and believes it to be much more probable that it is absorbed by the lungs.

He relates the following illustrative case: On the 4th of May, 1873, a woman at full term of her second pregnancy was admitted, suffering from laryngitis. Tracheotomy was performed the same evening. The patient did well until the 6th, when secondary hemorrhage occurred from the wound. The patient becoming moribund, Cæsarean section was performed before life was extinct by Professor von Nussbaum, and a healthy male child delivered. The child was removed to the lying-in hospital an hour and a half after its birth. The afternoon of the following day it was attacked by the well-known symptoms of puerperal infection—fever, laboured respiration, and a change in the skin to a yellowish tint. It died in about forty-eight hours. At the autopsy the left pleural cavity was found to be filled with blood-tinged purulent exudations, and the pleura itself covered with fibrin. There was inflammatory infiltration in the base of the left lung, and inflammation also of the right pleura. The umbilicus and its vessels were perfectly healthy. The child therefore died from an infectious pleuro-pneumonia, which could not have been derived from its mother. Puerperal septicaemia was present at the time in the lying-in hospital into which the child was removed, and other children died about the same time from septicaemic pneumonia.—*Obstetrical Journal of Great Britain*, July, 1877.

A New Operation for Prolapse of the Uterus.

In a paper read at a late meeting of the Société de Chirurgie (*Annales de Gynecologie*, April, 1877) M. le Fort describes a new operation invented by himself for the cure of prolapse of the uterus and vagina. Against the operation of anterior colporrhaphy, as practised by Marion Sims or Emmet, there are the objections that it is long and difficult of execution, being performed through the speculum. Complete, or almost complete, closure of the vulva is put out of the question, because it forms a bar to coitus; and the operation performed by Simon, by which the vulvar orifice as well as the posterior vaginal wall is narrowed, has been shown by experience to be not without certain dangers. The author observes that the first stage in prolapse is almost always a cystocele, and that the anterior and posterior vaginal walls are gradually rolled out and separated from each other, thus allowing the parts above to descend. The proceeding which he recommends is therefore to vivify a longitudinal strip on the anterior and posterior vaginal walls, and to unite these by sutures. The strips are vivified while the parts are external; the upper suture is tied first, and the uterus and vagina are gradually restored to position as the threads are successively tightened. A longitudinal septum is thus produced in the vagina, but the author contends that this is free from objection, since experience has shown that in cases of double vagina where such a septum naturally exists, there is no impediment to coitus or even to parturition.

A case is related in which the operation was performed upon a woman forty-eight years old, who had suffered from complete prolapse for six months. The vagina was entirely inverted, the bladder forming part of the tumour, and the sound passed 7 centimetres. In passing the sutures, the ends of the threads were left long, and by this means they were removed after the loops had cut through the tissues inclosed. Union was complete, and the result was entirely satisfactory as to the cure of the prolapse, but a second operation was performed six weeks later for the restoration of the damaged perineum.—*Obstetrical Journal of Great Britain*, June, 1877.

Injection of Hot Water in Uterine Surgery.

In consequence of the favourable reports which have of late been published concerning this procedure, Prof. Gusserow, of Strasburg, requested Dr. Runge, his clinical assistant, to give it a trial. The results of this, conducted in twenty cases, he reports in the *Berlin. Klin. Woch.* for March 26. Of these ten were examples of atonic post-partum hemorrhage, seven of hemorrhage after abortion or after labour with retention of portions of the placenta, and three of hemorrhage accompanying uterine growths. Some of the cases occurred within the clinic, but most of them were dispensary patients. An irrigator was employed, and in urgent cases, when this was not at hand, a syringe; and the temperature of the water varied from 38° to 41° R. (118° to 125° Fahr.), 40° being that usually chosen.

Of the ten cases of atonic hemorrhage, in two the success was complete, both women having fallen into a state of critical anæmia, and the usual means of arresting hemorrhage having been tried in vain. The effect of the injections was most remarkable, not only in promptly arresting the hemorrhage, but in their beneficial influence on the general condition of women so exhausted. In one of the cases ergot had been given before the injection, so that it may have contributed to the result. In five other cases the hot water was exclusively employed. In four of these it was resorted to soon after the flooding began, and the hitherto relaxed uterus soon contracted. In the other, the uterus, after the expulsion of the placenta, became distended with coagula, the woman being cold and pulseless. Some membranes which obstructed the os were removed, and large coagula forced out by pressure; but as the bleeding did not cease, hot water was injected with immediate good effect. In two other cases the effect was doubtful; and in the tenth case no effect resulted after continuing the injections for thirty minutes.

With respect to the seven cases in which the placenta or portions of it were retained, the injections proved of no use, or only temporarily useful, unless these had been previously removed. Nor did the hot water induce uterine contractions leading to their expulsion. In one case of retention of the whole placenta caused by a strictured state of the os, accompanied by considerable hemorrhage, the hot water did not diminish the bleeding, while it augmented the partial contraction, the upper segment of the uterus remaining relaxed. The injections were therefore abandoned, and the stricture was removed by mechanical dilatation. After the placenta had been removed, the hot water arrested the still continuing hemorrhage with promptitude. In other cases the bleeding was arrested, but it returned again until all remains of the placenta had been manually removed. One of the cases well illustrated the effect of the warm water on the emptied uterus. A woman was brought in after an abortion, with profuse hemorrhage and a gaping os, and the remains of the placenta were removed by the hand. While this was doing, the patient, owing to the abundant hemorrhage, faint and pulseless, passed into the last stage of anæmia. Hot water was injected, and the hitherto relaxed uterus became immediately hard, the hemorrhage ceasing. The woman came to herself at once—the beneficial influence of the heat upon her cold, pulseless body being strikingly obvious. In the three cases of uterine tumour with obstinate hemorrhage the influence of the injections was of but short duration. In two women with fibroids it was always arrested, to return again at the end of some hours or days. In a case of cancer of the cervix, also, abundant hemorrhage was at once checked, but returned again at the end of some hours. Although the hæmostatic power of hot water cannot be called into question, neither can it be indiscriminately employed as a sovereign remedy. The cases must be carefully considered as regards their etiology. Its greatest efficacy, as seen from what is related above, and in the twenty-two cases published by Jackesch, is found in cases of purely atonic hemorrhage: but it is of more doubtful value in those in which the uterus is not completely emptied of its contents. In cases of uterine tumour it is of temporary utility; but in what cases and to what extent it may here prove useful, further experience must decide. It must be admitted that in these hot-water injections we have a means of arresting hemorrhage which is not only not inferior to any other known, but which in certainty and harmlessness surpasses many, and especially the treatment by means of ice. We not only struggle against the hemorrhage with hot water more successfully than with cold, but we convey to the bloodless body that which is most useful to it, and which it can no longer itself produce—warmth—in place of still further abstracting this by the external and internal application of ice. It is this conveyance of caloric and the vivifying effects which result from it that entitle these hot irrigations to preference over other means. The sensibility of women to these injections seems to be very various. A full third of these cases bore the temperature of 40° R. without any painful sensation, except in some in whom a slight burning sensation in the perineum was caused by the escape of some of the water from the vagina.

Others complained loudly at first of burning in the abdomen and pain in the vagina, but they soon became accustomed to the procedure. When there are any lacerations present, the pain may be so great as to compel the abandonment of the injections, and even when the parts were quite uninjured the temperature has had to be lowered to 38°. An irrigator, by which a continuous stream can be more rapidly and certainly kept up, is much to be preferred to a syringe. Of course a solution of carbolic acid can be substituted for the water. Finally, it may be observed that the contraction of the uterus produced by these injections is peculiar. The uterus, it is true, becomes smaller and harder, but it never attains that degree of hardness—"as hard as a ball"—which we are accustomed to after a normal birth; it remains higher up and softer.—*Med. Times and Gaz.*, May 12, 1877.

—

Ovariotomy during Pregnancy.

MR. SPENCER WELLS, at a meeting of the Obstetrical Society of London (*Obstetrical Journal of Great Britain*, August, 1877), reported four cases, in addition to the five contained in his work on Ovarian Tumours, in which he had performed ovariotomy during pregnancy. The following are the details of the additional cases:—

CASE VI.—The patient was thirty-two years old, married, and with seven children. Abdominal distension was very great. She was tapped, but a few ounces only of thick colloid matter would pass through the canula. Oozing continued, but was stopped by passing a pin through the whole thickness of the abdominal wall. Ovariotomy was then performed at about the completion of the sixth month, as was supposed. The omentum only was adherent. A clot was found at the site of the tapping. A clamp was applied at first, but was found so to twist the uterus that it was removed, and the pedicle secured by ligature, and dropped. Twenty-four hours after the operation labour came on, and a seven-months' child was quickly born, and lived three hours. On the third day there were symptoms of peritonitis with tympanitic distension. On the sixth day free discharge took place from the upper part of the wound, after which convalescence was established.

CASE VII.—(Already reported by Dr. Kidd to the Obstetrical Society of Dublin.)—At the fifth month of pregnancy there was immense distension, and it was a question whether to induce premature labour. It was decided to tap, and five or six quarts of fluid were drawn off, mostly from the peritoneal cavity. Four cysts were opened at this time. Relief followed, and the patient was able to take a six hours' journey to Dublin, but the cyst rapidly refilled. When he saw her, she had a feeble pulse of from 140 to 150; there was vomiting and other signs of intestinal obstruction. He tapped to gain time, and removed much viscid fluid from the peritoneal cavity. The next day ovariotomy was performed, and the weight of the tumour, with the fluid removed, was forty pounds. The pedicle and some adherent omentum were tied, and the ligature cut short; some lymph was also wiped away from the surface of the peritoneum. Four hours after labour-pains came on, and a five-months' fœtus was expelled. Serum afterwards escaped from the wound, and death took place on the seventh day. In a similar case in future he would leave in a draining-tube.

CASE VIII.—The patient came under observation in July, 1876, having an ovarian tumour, and six weeks amenorrhœa. She was forty-one years old, and had six children, the youngest eight years old. She had had an abortion in 1875, and three or four previously. In September relief appeared to be called for, and five and a half pints of viscid ovarian fluid were removed by tapping. The puncture kept open for three weeks, and some symptoms of peritonitis appeared.

Ovariotomy was performed on October 12th, the uterus then reaching half way to the umbilicus. The cyst was adherent at the site of the puncture, but was easily drawn out. A long pedicle was secured with a clamp. The other ovary was healthy. During the operation much difficulty was found in preventing protrusion of the intestines, but convalescence afterwards was uninterrupted.

Case IX.—The patient was twenty-seven years old, had been married four years, and, when first seen, appeared to be about three months pregnant, her suffering having greatly increased since pregnancy occurred. On December 5th, 1876, the uterus was found to reach within three inches of the umbilicus. She thought she had quickened ten or twelve days before. Ovariotomy was performed on December 11, a thin cyst was drawn out, some adhesions posteriorly were tied, and the pedicle was also tied. The other ovary was found healthy. The cyst was dermoid, and weighed 2 lbs. 6 ozs. Febrile symptoms followed the operation up to the fifteenth day, accompanied by albuminuria. They were treated by the ice-water cap, with full doses of opium. The symptoms subsided, but miscarriage occurred about six weeks after the operation. The child was born alive: it was thirteen inches long, and appeared to be of twenty-eight weeks' development. The mother afterwards recovered well.

Since eight of the mothers out of nine recovered, the author hoped that the facts now recorded would help to form professional opinion as to the relative advantage of ovariotomy as compared with the induction of premature labour in such cases. The following is a tabular statement of the whole nine cases in which the author performed ovariotomy during pregnancy:—

Cases of Ovariotomy during Pregnacy.

No.	Medical Attendant.	Age of patient.	Period of pregnancy.	Date of ovariotomy.	Weight of tumour.	Result to mother.	Result to child.	Subsequent History.
1	Mr. Cook, Clovelly.	24	4th to 5th month	Aug. 1865	28 lbs.	Recovery	Fœtus removed at same time.	Well in 1876.
2	Mr. Bateman, Islington.	36	2d month	Aug. 1869	37 lbs.	Recovery	Alive; natural labour Feb. 1870.	Died of cancer of uterus, March, 1871.
3	Dr. Goddard, Pentonville.	28	3d month	Dec. 1870	15 lbs.	Recovery	Alive; natural labour July, 1871.	Other children born May, 1873 and Aug. 1876.
4	Dr. Ross, Bloomsbury.	38	3d month	May, 1871	34 lbs.	Recovery	Alive; natural labour Dec. 1871.	Another child born Jan. 7, 1877.
5	Dr. Moore, Ipswich.	29	4th month	Mar. 1872	10 lbs.	Recovery	Alive: natural labour May, 1872.	Another child born May, 1873; well, June, 1877.
6	Mr. Coleman, Woolwich.	32	7th month	Aug. 1872	26 lbs.	Recovery	Seven months' child: born day after operation.	Living children born, Dec. 1873, and Mar. 1876; another expected July, 1877.
7	Dr. Kidd, Dublin.	38	6th month	Mar. 1876	40 lbs.	Died seven days after	Fœtus expelled six hours after operation.	
8	Dr. Roberts, Cheshunt.	41	4th month	Oct. 1876	7 lbs.	Recovery	Child born April, 1877; labour natural.	Well, June, 1877.
9	Surg.-Major Perry.	27	7th month	Dec. 1876	12 lbs.	Recovery	Child born 25 days after.	Well, May, 1877; Menstruation regular.

Dr. Playfair asked what Mr. Spencer Wells's experience had been of other modes of treatment, such as tapping alone, or induction of premature labour. His own opinion was that ovariotomy was probably the treatment most likely to be successful. The results were very unfavourable when patients went on to term even when the ovarian tumour was small. Of thirteen such cases, collected by him in a former paper, seven had proved fatal. In one case, in consultation with

Mr. Wells, he had induced abortion at an early period. Death followed, probably from some low form of cyst inflammation. He now regretted that ovariotomy had not been performed.

Mr. LAWSON TAIT said that Dr. Playfair had given them a valuable lesson as to the risk from small ovarian tumours in pregnancy, but his own experience had been different. He only saw two or three cases of labour in a year, but almost all of them were cases complicated by tumours. He had had at least four cases, if not five, of small ovarian tumours in front of the head. In all of them, the administration of chloroform, and pushing up the tumour, without any tapping, had been quite successful. The paper of Mr. Wells was conclusive of the expediency of the operation he recommended. He had himself had one case, and, although the result was unfortunate, this did not prove anything the other way. The patient was in the seventh or eighth month of her ninth pregnancy. In her last labour the cyst had ruptured, and she had a narrow escape with her life. He was called in to decide whether it was advisable to interfere. He had a great prejudice against premature labour, having had serious misfortunes with it. He therefore decided upon ovariotomy, although it was believed that the tumor was adherent. This proved to be the case, but the pedicle was long, and secured by a clamp. The patient went on well till the sixth or seventh day, when labour came on, and the fœtus was rapidly expelled. She began to sink from that time. At the autopsy the only condition found was a gangrenous state of the pedicle up to the cornu of the uterus. Probably there had been embolic interference with the circulation in it. The miscarriage proved to be the last straw, but he believed that the state of the pedicle was primary to it. In five or six cases he had tapped during pregnancy with a good result, and in three of them ovariotomy had been performed after delivery. He had never induced premature labour, and would prefer ovariotomy to that operation, but would tap if that measure seemed likely to be sufficient. As a rule, he would never perform any operation on a pregnant woman if he could help it.

Dr. GALABIN asked whether Mr. Wells attached any importance, in making the choice of operation, to the stage of pregnancy reached. Of the cases tabulated, miscarriage occurred in all in which ovariotomy had been performed later than about the fourth month of pregnancy, and in none of the others. Mr. Lawson Tait's case, at the sixth or seventh month, was followed by miscarriage and death; and in a case recently published by Dr. Wilhelm Baum, in which ovariotomy was performed antiseptically at the fifth or six month, miscarriage followed, and the patient had a very narrow escape with her life. It would seem therefore that miscarriage might be expected after ovariotomy in the later stages of pregnancy, and the supervention of the puerperal state could not but add to the danger. If this rule were confirmed, it would seem desirable to choose induction of premature labour in a late stage of pregnancy, and not to delay ovariotomy, if indicated in the earlier months.

Dr. PLAYFAIR said that the thirteen cases he had referred to were all cases of small tumours jammed down in the pelvis, which had not been suspected during pregnancy. All the patients recovered in whom the tumours had been tapped, but the mortality was much greater when the tumour had been pushed up without tapping. The right practice, therefore, was to tap first.

Mr. SPENCER WELLS, in reply, said that the anxious case, already mentioned, which he had seen with Dr. Playfair, showed the difficulties which arose in practice, and defied the laying down of rules. The patient often won't have the treatment which is recommended. The tumour in that case was a small one, and there was a doubt whether it was uterine or ovarian. The first conclusion was to wait, as it did not appear to be growing. Then came great suffering, and the friends refused ovariotomy, and preferred the induction of premature labour, which was carried out. Septicæmia and uterine phlebitis came on, and the patient died. The friends have an undoubted right to share in the discussion, and it is often advisable and necessary to let them share the responsibility of the decision. The question of tapping depended on whether the cyst were single or compound. If it were single, most would prefer tapping to ovariotomy. The tumours he had removed in pregnancy were not all solid ones, and the weights given included the fluid contents. The proposal to remove the fœtus first seemed to him dangerous. If the patient were put into the puerperal state, the operation, if performed afterwards, would be very hazardous. Mr. Lawson Tait's cases of small tumours were hardly in point. The question of tiding over the danger by tapping was important, but was often decided by the patient herself. The facts adduced to show that some cases may go on without bad result to full term were very important. He had himself related one in which five successive pregnancies took place. The patient was a servant of an ovariotomist, and knew something about his results. But he thought such cases were very unfrequent, and could not form any guide for our treatment. As to the proportion of cases he had seen in which ovariotomy was not performed, he could not now state it exactly, but there were not more than ten or twelve. The conclusion he arrived at from them was that, as a rule, the results were not so good as with ovariotomy performed tolerably early. As to the influence of the stage of pregnancy reached, he thought the cases were as yet hardly numerous enough for a positive conclusion, but he called attention to one in which ovariotomy was performed at the seventh month, and miscarriage did not occur till twenty-five days after. But the evidence was rather in favour of performing the operation early. The rate of growth was no doubt important as influencing the decision. If a growing tumour were multilocular, either the tumour or the fœtus must be removed. The puerperal state was much less favourable to operations than pregnancy. Pregnant patients did as well after operations as any others.

Abdominal Drainage in Ovariotomy.

In the *Archiv für Gynäkologie*, B. ix. H. 3, Professor Hildebrandt recommends the treatment of the pedicle in ovariotomy by ligatures of stout silk, cut short and dropped, combined with the use of a drainage tube, as far preferable to the use of the clamp. The drainage tube is passed into the vagina as recommended by Marion Sims. This is done by carrying a canula to the bottom of Douglass's fossa in the middle line, two fingers of the other hand being in the vagina, and then forcing the trocar straight through the septum, taking care that it does not go obliquely. A thin drainage tube is then passed through the canula, the canula is withdrawn, and the tube fixed in the lower angle of the wound. The author points out that by this method the course of the tube through the peritoneal cavity is a short one; it does not lie near enough to the ligatured pedicle to convey air to it, and so cause suppuration, and it is in contact with the intestines for a short distance only, lying against the uterus and bladder. If, however, the use of the drainage tube is combined with that of the clamp, the tube must be fixed in the wound at a higher point, and is more likely to cause irritation, having to pass for a greater distance through the peritoneal cavity. The author considers that the drainage can only be of use for the first four or five days, during which time only bleeding or exudation is likely to take place, and that, at the end of that time, should be removed. Three cases are related in which his method was followed. Two of these recovered without bad symptoms, the third was fatal. In the fatal case the cyst had ruptured previously, and innumerable colloid masses were found adherent to the peritoneum. These could not be effectually removed at the operation, nor was it likely that they could pass through the drainage tube. At the autopsy, peritonitis was found, with adhesion of the intestines, and purulent exudation, but the peritonitis was less in the neighbourhood of the drainage tube than elsewhere.

In the same number Professor SCHATZ gives his experience of drainage in ovariotomy. He considers it as unnecessary except in cases in which hemorrhage or considerable serous exudation is to be expected. He points out also that, if the drainage tube is passed through the pouch of Douglass, no effectual washing out of the whole peritoneal cavity with antiseptic fluid by its means is possible. Two successful cases are related in which the operation was performed under the carbolic spray, the pedicle treated by the clamp, and a drainage tube passed through the pouch of Douglass into the vagina, the upper end being fixed in the wound. One of these patients had undergone ovariotomy twenty-five years before. A third case, also successful, is recorded, in which the operation was performed under the carbolic spray, the pedicle treated by the clamp, and no drainage tube used, the cyst being found free from adhesions.

In the *Sammlung Klinische Vorträge*, No. 109, Professor HÉGAR expresses his preference for the immediate closure of the abdomen in the great majority of cases. He considers that great danger attends the leaving of sutures or pieces of ligatured tissue to be inclosed only when the tissue is of such a nature that a rapid decomposition is to be expected, before there is time for it to become encapsuled by adhesions, otherwise a local abscess may indeed be formed in some cases, but this generally makes its way either to the surface of the abdomen or the intestine, and, although it involves some danger, does not prevent a favourable result. If, however, it is found necessary to leave behind considerable portions of solid tumour, or detached and bruised portions of the cyst-wall, the most complete drainage possible should be established, and a single opening is not sufficient.

Professor Hégar considers that dropped ligatures, or the charred remnant of a pedicle divided by cautery, are by no means absolutely free from injurious results. He relates fifteen cases of ovariotomy, performed in the course of a year and a half, without a single death. Of these, seven were straightforward cases and eight complicated. The pedicle was secured by the clamp in five cases, divided by the cautery and dropped in one, ligatured and dropped in nine. In the one case treated by cautery a somewhat severe attack of peritonitis came on on the eighteenth day after the patient had gone home. In one case treated by clamp, febrile symptoms came on on the seventh day, and an abscess formed in the neighbourhood of some ligatures which had been applied to the omentum and dropped. Of the cases in which the pedicle was ligatured and dropped, an abscess formed and discharged at the end of the third week in one; in a second, the ligature and a piece of necrosed tissue was discharged through the bowel on the sixteenth day; in a third, two ligatures with a piece of tissue were discharged through the opening of an abscess in the abdominal wall on the seventeenth day, and two more ligatures on the twenty-first day; in a fourth, an abscess was formed, and discharged on the nineteenth day by the rectum. The author has even observed similar results after a much longer interval. In a case in which the pedicle was ligatured and dropped the patient became pregnant, and was delivered naturally eighteen months after the operation, but an abscess afterwards formed in the neighbourhood of the pedicle and discharged through the cicatrix in the abdomen six or seven weeks later. Professor Hégar employs silk for the ligatures. He adopts all precautions to guard against the access of any septic influence, but does not make use of the carbolic spray, fearing the occurrence of symptoms of carbolic poisoning. For the cleansing of instruments and hands he uses chlorine water, regarding this as less irritating than carbolic acid.—*Obstetrical Journal of Great Britain*, May, 1877.

AMERICAN INTELLIGENCE.

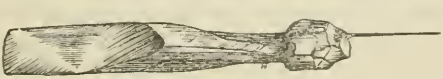
ORIGINAL COMMUNICATIONS.

Foreign Body of unusual kind in the Air-passages: Tracheotomy; Spontaneous Expulsion after Sixteen Days. By P. S. CONNER, M.D., Professor of Anatomy and Clinical Surgery in the Medical College of Ohio.

As a contribution to the literature of "foreign bodies in the air-passages" the following case is reported:—

During the afternoon of February 3, 1877, J., æt. 11, living on a farm fourteen miles from this city, was playing with a short cane blow-gun, the dart of which was a rudely-shaped piece of pine wood one and seven-eighths of an inch long, one-eighth of an inch wide, one-eighth of an inch in greatest thickness at the head, fastened to which was an ordinary pin projecting nine-sixteenths of an inch. Intending to blow with as much force as possible, the child made a full inspiration, during which the dart was suddenly drawn into the windpipe. The ordinary violent symptoms of suffocation at once manifested themselves. The family physician, Dr. Sparks, was sent for, and upon his arrival late in the evening despatched a messenger for me. When I arrived, at 4 A.M., the child was resting comparatively easily, and had had, I was informed, no suffocative attack for several hours. The respiratory sounds were clear and somewhat exaggerated over the entire left lung and the upper part of the right. Into the lower lobe of the right lung little or no air was entering. At 7 A. M. made tracheotomy, dividing the upper rings; the bleeding was very slight. The foreign body could not be reached even with the silver wire used in exploration, which readily passed for a considerable distance into the left bronchus and for a short distance into the right. The edges of the wound were held apart by small hooks fastened by a tape around the neck, and directions left as to the maintaining of a warm moist air in the room. The dart, having been drawn in with the blunt end downwards and pin-point upwards, was liable to catch in the mucous membrane at any attempt at being coughed up, and I regarded the probability of spontaneous expulsion as very slight, and the prognosis of the case consequently very grave.

Broncho-pneumonia was soon developed, and the various reports received from the case were more and more unfavourable up to the seventeenth day.



At that time Dr. Sparks informed me that on the previous evening, *sixteen days after the entrance of the foreign body*, after a violent fit of coughing, the child called to its mother that something was sticking in her mouth, and examination showed that the dart was lodged cross-wise with the pin-point caught in the mucous lining of the cheek. Removal of the foreign body was followed by the speedy closure of the tracheotomy wound and rapid subsidence of all the inflammatory symptoms. In less than two weeks afterwards the child was up and about apparently as well as ever. The dart so fortunately gotten rid of is now in my possession, and its exact size and shape are shown in the accompanying wood-cut.

CINCINNATI, OHIO, Sept. 12.

A Case of General Transposition of the Viscera. By CHARLES KELSEY, M.D., Assistant Demonstrator of Anatomy at the College of Physicians and Surgeons, New York.

The following notes were taken from a case of complete transposition of the viscera, found in the dissecting-room of the College of Physicians and Surgeons during the course of 1876–77.

The subject was a female about thirty years of age. Cause of death and previous history unknown. The head had been opened and the brain removed at a previous autopsy. The liver occupied the left hypochondrium, extending by its lesser lobe into the right. The spleen and stomach were upon the right side, and the openings of the latter were transposed, the œsophageal being on the right and the pyloric on the left of the median line. The pancreas lay with its head to the left, embraced in the curve of the duodenum, and its lesser extremity pointing towards the right. The caput coli and appendix were in the left inguinal region, the colon ascending on the left and descending on the right. The kidneys, uterus, and ovaries presented nothing unusual.

The lungs on both sides were covered with old adhesions, but not so thickly as to conceal their divisions. Each lung consisted of two distinct lobes only, but in the left there was a shallow fissure marking off a rudimentary third lobe from the lower posterior portion of the upper segment. The relation of parts at the root of the lung was as follows: right side, from before backwards, vein, artery, bronchus; from above downwards, artery, bronchus, vein. Left side, from above downwards, bronchus, artery, vein; from before backwards, vein, artery, bronchus. Both right and left main bronchi divided into two branches of nearly equal size.

The heart was situated on the right side, and was normal in size. The thin-walled ventricle occupied the left of the organ and formed the greater part of its anterior surface; the ventricle from which the aorta arose made up the right side, posterior surface, and apex.

The pulmonary artery arose from the front of the left ventricle, and curved from left to right and from before backwards around the origin of the aorta, which it partially concealed, and behind which it divided into its two branches. The one to the left lung continued its course behind the ascending arch, the other passed in front of the descending aorta.

The pulmonary veins, four in number, emptied into the right auricle, the two from the left side having a common opening. The right innominate vein passed to the left of the median line to join with its fellow from the opposite side and form the superior vena cava, which emptied into the left auricle. The inferior vena cava, ascending on the left of the aorta, emptied into the same cavity.

The aorta arose from the right ventricle, curved from left to right, and descended on the right of the spine, gradually approaching the median line, which it reached at its bifurcation on the last lumbar vertebra. The iliac arteries on both sides were normal in length and position. The branches of the arch of the aorta were, first, the innominate on the left side, then the right carotid, and lastly the right subclavian.

The vena azygos lay directly in the median line, upon the bodies of the vertebræ. The thoracic duct lay between the aorta and vena azygos, curved sharply to the right under the descending arch, and emptied into the right subclavian vein.

The œsophagus curved to the right in the neck, to the left in the thorax, and at the diaphragm it crossed over the aorta to its opening on the right of that vessel.

In the diaphragm the opening for the œsophagus was to the right, and for the vena cava to the left of that for the aorta.

The recurrent laryngeal nerve curved around the subclavian on the left, and around the arch on the right side.

The dorsal curvature of the spine was very distinct, extending from the second to the twelfth dorsal vertebra, most marked from the third to the seventh, and having its *convexity to the right.*

The dissection of the extremities showed no anomalies worthy of note.

In looking up the literature of these cases, I am indebted to Dr. T. T. Sabine for two monographs: one by H. Beaunis, "*Remarques sur un cas de Transposition Général des Viscères,*" Paris, 1874; the other by Dr. Georg Burgl, "*Zur Casuistik des Situs Viscerum Mutatus,*" Munchen, 1876. In the first of these, the whole subject can be found, together with some excellent drawings of the organs in position, and views of the heart and great vessels. The literature of the cases is also given, and a list of seventy seven is appended.

This particular case is worthy of note, not so much on account of the general transposition of the viscera, as of the curve of the spine. In the list given by Beaunis, there are only four similar ones in which the curve is stated to have been normal, with its convexity to the right; and he discusses at some length the different bearings of the question with regard to the probable causation of the curve.

DOMESTIC SUMMARY.

On the Antagonism between Nicotin and Strychnia.

Dr. Francis L. Haynes, Assist. Surg. to Episcopal Hospital, Phila., from a number of experiments detailed in a monograph published in the *Proceedings of the Am. Philosophical Society*, Jan. to May, 1877, draws the following inferences:—

1. Strychnia and nicotin are in no degree antagonistic poisons.

2. Strychnia increases the convulsive action, and does not diminish the motor paralysis of nicotin.

3. Nicotin (even in paralyzing doses) increases the convulsive action of strychnia.

4. Both poisons cause death by paralyzing the respiratory apparatus. They may effect respiration in different ways, but the result is the same.

5. Animals may be killed by injecting together doses of the two drugs, which, singly, are not fatal.

A Case of Bony Formation in the Place of the Lens.

Dr. W. J. McDowell, Assistant Surgeon to the Baltimore Eye and Ear Infirmary, reports (*Virginia Med. Monthly*, August, 1877) the following case of this rare formation in this locality.

The patient, aged seven, had, four years ago, while playing with a breastpin, stuck herself in the eye. The pin perforated the cornea, iris, and lens, and a destructive irido-cyclitis ensued which resulted in loss of sight and atrophy of the globe. The injured member gave little or no trouble until two or three months ago, when symptoms of sympathetic trouble manifested themselves in the other eye. The child was placed upon the table, chloroform administered, and the globe extirpated.

On cutting into the eyeball after its removal, the disorganized and fluid vitreous escaped, but the aqueous fluid, as seen through the clear cornea, remained *in situ*. This led me to carefully examine the iris, lens, and ciliary structures.

I found the aqueous chamber entirely shut off from the vitreous by a septum of organized lymph, in the centre of which was a hard, whitish substance, which I at first took to be a calcareous lens, for it resembled the lens both in size and in shape. Upon closer examination, however, I found that instead of being hard and brittle, it was tough and bone-like. Upon suggesting to Prof. Chisolm the possibility of its being bone, he kindly gave me the specimen for a more minute examination. After placing it in a decalcifying solution of chromic and nitric acids, and allowing it sufficient time to digest, I made microscopic sections. The result was confirmatory of my conjectures, for the lacunae, canaliculi and Haversian canals, with the lamellae could be distinctly made out.

I do not regard it at all probable, that the substance found was in reality an ossified lens, although it was situated exactly in the place of the lens. But I am disposed to account for the presence of the bone in this locality in another way. The laceration of the capsule of the lens by the pin when the eye was injured, must necessarily have resulted in disorganization, liquefaction, and absorption of the lens substance. This will account for the absence of the lens. As a result of the injury, also, an intense irido-cyclitis ensued; a large amount of plastic lymph was thrown out upon the ciliary body, iris, and lens capsule. This lymph, drawing ample nourishment from the vessels of the iris, became organized, forming connective tissue, and subsequently underwent ossification.

There are, I believe, only two or three cases on record in which bone has been found in the place of the lens, one of which was reported by Dr. P. D. Keyser, of Philadelphia, at the last meeting of the International Ophthalmological Congress which was held in the city of New York, September, 1876. (See *Transactions of Fifth International Ophthalmological Congress*, page 131.)

Excision of Astragalus and portion of External Malleolus in a Case of Congenital Talipes Equino-varus.

Dr. Mason presented at a recent meeting of the New York Pathological Society (*Med. Record*, July 14, 1877) the astragalus and portion of the external malleolus, which he removed by operation from a case of congenital talipes equino-varus. The patient was a woman aged 20, in whom the deformity of both feet was congenital. She was able to walk for a mile at a time, although with much difficulty, as the weight of the body was on the outer and dorsal surfaces of the foot. The patient had been under the care of Dr. Sayre, who divided both plantar fascia, with, however, no good effect. Dr. Sayre kindly handed over the case to Dr. M., and the patient entered his service at Roosevelt Hospital.

Dr. M., in studying the case, conceived the possibility of removing the cuboid bone and then bringing the foot in position. Dr. Post, on examining the case, suggested the propriety of removing the astragalus instead, thereby preserving the arch of the foot. This operation was accordingly done, April 2, upon the left foot. An incision was made nearly midway between the malleoli, the tendons and vessels being carefully pushed to one side. It was noticed that the extensor brevis was remarkably well developed. The astragalus was removed with great difficulty by the careful use of the scalpel and scissors. An attempt was made to straighten the foot, when it was discovered that the external malleolus impinged in such a manner upon the outer surface of the os calcis, that the foot could not be brought to a right angle. The external malleolus was accordingly cut off. It was even then found that the foot could not be brought in position until the tendo Achillis was divided. The limb was placed in plaster-of-Paris, with a large fenestrum opposite the wound, and the patient put in bed.

Although she seemed in excellent condition. some spots of ecchymosis appeared upon the right foot. Similar spots were noticed upon the left foot the following day, following hypodermic injections. On the third day she had an attack of severe stomatitis, coincident with which the tissues about the foot were noticed to be sloughy. The large bursa on the foot sloughed, leaving bare almost the entire dorsum. The toes preserved their vitality. On the 5th of April, the splint was removed and the limb was placed in a fracture-box. At that time there was noticed a large slough behind the internal malleolus, and altogether her condition was very unfavourable to recovery.

Early on the morning of April 15, a copious secondary hemorrhage occurred evidently from the posterior tibial artery. Amputation of the leg was performed on that afternoon. Everything promised fairly after the operation until the 3d of May, when, for some utterly unaccountable reason, she lost her appetite and spirits, and died May 8th. Two or three days before her death she suffered severely from an abscess of her index finger. Although the case terminated so unfortunately, Dr. Mason declared that the operation was a feasible one. and that he should be ready to perform it again upon a patient in a proper physical condition.

Division of the Femur by Subcutaneous Osteotomy.

Dr. J. W. Hamilton, Professor of Surgery in Columbus Medical College, reports (*Ohio Medical Recorder*, Aug. 1877) the following case of this, which is, he believes, the fourth recorded case of subcutaneous osteotomy for anchylosis performed in this country.

Mr. R., aged 23 years, apparently a healthy man. had an attack of right morbus coxarius at the age of thirteen years. Suppuration occurred, and several sinuses formed, one of which remained open and continued to discharge a slight amount of pus. Incidental to all this the femur became flexed, and firmly fixed in such a position that when he stood erect the lower extremity was raised more than an inch above a right angle. In this position the limb was very much worse than useless. The knee-joint remained good. except that it could not be fully extended. As compared with the left leg. there was two and one-half inches of shortening. of which one inch and a half was in the thigh. and an inch in the leg.

The patient was placed on the operating table Feb. 8, 1877, and put under the influence of ether. A slight longitudinal incision was made down to the bone. just opposite to the base of the trochanter major. A strong chisel, with a cutting edge of one-fourth inch. specially tempered and tested for the case, was now driven by a succession of taps from a mallet, perpendicularly about through the bone. This being withdrawn, another chisel. with less thickness and strength, but about the same extent of cutting edge, was entered, first at one, then at the other extremity of this first cut, and in like manner driven through. This latter instrument was provided with a shoulder, based on the estimated diameter of the bone. It enabled me, through the touch, without withdrawing the instrument, to calculate quite closely as to when my cuts were deep enough. By using great care as to the direction of my instrument, I was able to divide the bone very smoothly, without chipping or splintering. The division of the lateral portions of the bone was effected more by changing the direction of the chisel than by the lateral extension of the first opening. The entire division was completed by the use of the chisel, and without any forcible fracturing. In a certain sense, and to a certain extent, the operation was not only subcutaneous, but sub-periosteal as well.

The impression made by this part of the operation was that the bone was of more than normal hardness. Yet, that it was, throughout, in the highest sense, a cutting operation, is made pretty clear by the fact that the section was completed without perceptibly dulling either of my sharp instruments.

The patient was placed in bed, and an eight-pound weight extension applied. After a few days the limb and pelvis were encased in plaster-of-Paris dressings. There was but trifling inflammation and suppuration. The pus that formed escaped mainly through the old sinus. Fifteen days after the operation the patient was taken to the country. Six weeks after the operation he was getting about, and was able to reach the ground with his right foot. There continues to be a slight discharge from the old sinus. The fragments are, apparently, undergoing consolidation. No attempt has been made to secure a false joint, because I supposed that after a dozen years of disease and inaction the muscles were practically destroyed.

To appreciate fully the plan of the operation, it would be well to bear in mind that in the erect position, before the operation, the femur projected forward an inch above the horizontal, and that after the division of the bone the upper fragment continued *in situ*. The change in direction was confined to the lower fragment. This was brought down so that about one-half of its cut surface rested on the periosteal surface of the upper fragment, and under its anterior extremity. I considered this position highly favourable, so far as the union and final strength of the bones was concerned, and I thus secured a maximum length, or rather, that while I lost length equal to that of the upper fragment, I gained length equal to the diameter of that fragment, at the point of division.

MEDICAL DEPARTMENT OF THE UNIVERSITY OF NASHVILLE AND OF VANDERBILT UNIVERSITY,

NASHVILLE, TENNESSEE.

The Fall and Winter Session of 1877–78 commences October 1st, 1877, and closes the last Thursday in February, 1878. Professors' and Demonstrators' tickets, including Matriculation Fee, $65. Graduating Fee, $30. For catalogue or information, apply to

DR. J. M. SAFFORD, *Sec.*,
Nashville, Tennessee.

INDEX.

A.

Abdomen, cystic tumours of, 199
Abscess, biliary, opening into bronchus, 463
———, cerebral, opening of, 556
———, retropharyngeal, 574
Air-passages, foreign body in, 595
Albuminuria, traumatic, 253
Alison, syphilitic chorea, 75
Amaurosis after hemorrhage, 584
Amblyopia after hemorrhage, 584
American Gynæcological Society's Transactions, notice of, 194
Anæmia, alteration of marrow in pernicious, 241
Anæsthetic, the best, 549
Anasarca treated by drainage tubes, 254
Andrews, Mortality of Surgical Operations in upper Lake States, Notice of, 229
Aneurism of aorta, cure of, 575
——————— diagnosed by laryngoscope, 249
Anus, imperforate, 287
Arsenic, fallacies of Reinsch's test for, 399
Artery, axillary, rupture of, with dislocation of humerus, 270
Atlee, menstruation by the pedicle after ovariotomy, 288
———, spontaneous discharge of pelvic effusion, 107
Atthill, relation between erysipelas and puerperal fever, 586

B.

Baker, necrosis without suppuration, 267
Balfour, Diseases of the Heart and Aorta, review of, 153
Balleray, strangulated ovarian hernia, 437
Barclay, urine in rheumatism, 498
Barlow, pleuritic effusion in childhood, 561
Barnes, retro-uterine tumours, 495
Bennet, Nutrition in Health and Disease, notice of, 201
Berger, extirpation of larynx, 258
Bibliographical Notices—
——— American Gynæcological Society, Transactions of, 194
——— Andrews, Mortality of Surgical Operations in Upper Lake States, 229
——— Bennet, Nutrition in Health and Disease, 201
——— Boston City Hospital Reports, 500
——— Braune, Atlas of Topographical Anatomy, 534
——— Browne, How to Use the Ophthalmoscope, 536

Bibliographical Notices—
——— Charcot, Diseases of the Nervous System, 532
——— Dowell, Yellow Fever and Malarial Diseases, 230
——— Duhring, Atlas of Skin Diseases, 218
——— Dunglison, Practitioner's Reference Book, 541
——— Folsom, Diseases of the Mind, 529
——— Gurlt, Military Surgery in Prussia, 226
——— Guy's Hospital Reports, 484
——— Handbook for Hospital Visitors, 232
——— Hutchinson, Illustrations of Clinical Surgery, 213
——— International Ophthalmological Congress, Transactions of, 188
——————— Otological Congress, Transactions of, 191
——— Jackson, Researches on the Nervous System, 210
——— Jones, Anæsthetics, 221
——— Lautenbach, On a New Function of the Liver, 507
——— Lewis, Leprosy in India, 214
———————, Oriental Sore, 216
——— McClelland, Civil Malpractice, 203
——— Massachusetts State Board of Health Report, 514
——— Medical Register for New England, 232
——— Medicine and Surgery in Canton, 538
——— Meigs and Pepper, Diseases of Children, 231
——— New York Pathological Society's Transactions, 228
——— Obstetrical Society of London, Transactions of, 178
——— Otis, Report on Transport of Sick and Wounded by Pack Animals, 229
——— Parkin, Gout, 537
——— Reports of American Hospitals for Insane, 542
——— Saint Bartholomew's Hospital Reports, 171
——— Schäfer, Practical Histology, 211
——— Seguin, Myelitis of Anterior Horns, 231
——— State Medical Societies' Transactions, 223, 518
——— West Riding Lunatic Asylum Medical Reports, 184
——— Woodworth, Report of U. S. Marine-Hospital Service, 218

Bibliographical Notices—
——— Wythe, The Microscopist, 222
——— Ziemssen, Cyclopædia of Practice of Medicine, 206, 526
Billroth, extirpation of spleen, 261, 578
Binz, mode of action of narcotics, 236
Bird, subcutaneous osteotomy of femur, 485
Bixby, cystic tumours of abdomen, 199
Bladder, obturator hernia of, 267
———, treatment of atony of, 266
Blake, treatment of empyema, 502
Blandford, nerve degeneration, 497
Blindness, causes of preventable, 184
Body, development and proportions of, 492
Bone tumours, 485
Boston City Hospital Reports, notice of, 500
Bowditch, growth of children, 516
Bowels, management of, in enteric fever, 250
Boyland, ergot in urethral hemorrhage, 290
Brachial plexus, anatomy of, 387
Brain, atrophy of portions of, after amputation of arm, 244
———, correlation between distribution of arteries and the physiological regions of, 233
——— disease, syphilitic, 552
——— functions, 371
———, cases illustrative of arrest of, 486
Breast, innocent tumours of, 137
Briddon, excision of rectum for cancer, 295
Browne, pathology of general paralysis, 186
Brunton, physiological action of casca, 173
Bryant, bone tumours, 485
Buckell, Cæsarean section after death, 586
Bulkley, arsenic in pemphigus malignus, 408
Bull, choked disk following injuries to head in children, 365
———, inherited syphilis of eye, 66
Burow, osteoplastic resection of superior maxilla, 272
Busch, epithelial cancer of lips and face, 256

C.

Cæsarean section after death, 586
Callender, gastrostomy for malignant disease of œsophagus, 258
Campbell, pneumatic self-replacement of uterus, 197
Camphor, carbolated, as a dressing, 237
Cancer, epithelial, of lips and face, 256
Canton, medicine in, 538
Carotid, common, ligature of, 112
Cartilages, excision of the epiphysial, for arresting growth of bones, 274
Casca, physiological action of, 173
Cataract, diabetic, 276
Cerebellum, function of, argument from pathology upon, 110
Chadwick, labour complicated with uterine fibroids, 198
Chapin, large oxalate of lime calculus, 452
Chapman, sarcoma of pharynx, 433
Charcot, Diseases of Nervous System, notice of, 532
———, trembling in paralysis agitans, 246
Chiene, retropharyngeal abscess, 574
Children, growth of, 516
Chloral, 235
——— in delirium tremens, 239
Choked disk following injuries to head in children, 365
Chorea, clinical history of, 551
———, syphilitic, 75
Chuquet, atrophy of portions of brain after amputation of arm, 244
Chvostek, leuchæmia, 550
Cleborne, transverse fracture of patella, 460
Cock, primary syphilis, 484
Cohnheim, alteration in marrow of bones in pernicious anæmia, 241
Colotomy, 413
Conjunctiva, worm removed from beneath, 113
Connecticut Medical Society's Transactions, notice of, 519
Conner, foreign body in air-passages, 595
Cord, secondary degenerations of spinal, in lesions of brain, 247
Cornea, parenchymatous diseases of, 276
Credé, surgical fever after antiseptic operations, 572
Cystic tumours of abdomen, 199
Cysts of broad ligament, diagnosis of, 281

D.

Da Costa, internal complications of acute erysipelas, 321
Danewsky, salicylate of soda, 236
Delivery, fibroids complicating, 277
Development, physical, 492
Dickinson, scirrhus of prostate, 265
Digestion, gastric, 546
Diphtheria, prognosis and treatment of, 346
District of Columbia, Transactions of Medical Society of, notice of, 525
Duhring, Atlas of Skin Diseases, notice of, 218
Dulles, supra-pubic lithotomy, 116
Duncan, central rupture of perineum, 195
Duret, correlation between distribution of arteries and physiological regions of brain, 233

E

Eaton, perineal fistulæ, 102
Ectropium of both upper eyelids, 277
Eczema, collodion flexile in, 572
Edes, cold-water treatment of typhoid fever, 504
———, diseases of nervous centres, 503
Effusion, pelvic, spontaneous opening of, 107
Eichhorst, acute ascending paralysis, 559
Emmet, treatment of uterine flexures, 194
Empyema, treatment of, 489, 502
Epileptic fits, prevention of, by injections of morphia, 558, 559
Erysipelas and puerperal fever, relation between, 586
Eserine in ophthalmic therapeutics, 549
Ether, first insensibility from inhalation of, 130
———, internal complications of acute, 321
Eye, drainage of, by catgut, 585
———, inherited syphilis of, 66
Eyeball, extirpation of, for melanosis, 113

F.

Femur, division of, by subcutaneous osteotomy, 599
———, neck of, subcutaneous osteotomy of, 485
Fever, surgical, after antiseptic operations, 572
Fibroid, extra-uterine, treated by gastrotomy, 178
Fistula, uretero-vaginal, 279
Fistulæ, perineal, etc., 102
Fœtation, case of included, 466
Folsom, Diseases of the Mind, notice of, 529
Foster, Physiology, review of, 143
Fothergill, Handbook of Treatment, review of, 163
Fox, croup and diphtheria, 498
Fractures, compound, 505

G.

Galabin, pregnancy complicated by malignant disease of cervix, 182
Gastrostomy for malignant disease of œsophagus, 258
——————— in obstruction of œsophagus, 261
Gastrotomy, extra-uterine fibroid treated by, 178
——————— in extra-uterine pregnancy, 183
Gay, compound fractures, 505
Genu valgum, operative treatment of, 275, 583
Germ Theory of Disease, review of, 479
Glossitis, parenchymatous, 560
Gonorrhœa in females, latent, 198
Goodhart, treatment of empyema, 489
Gowers, chorea, 551
Granular lids, acetate of lead in, 275
Grasset, cutaneous faradization in cerebral hemianæsthesia, 245
Griffiths, ether spray in post-partum hemorrhage, 278
Grimshaw, management of bowels in typhoid fever, 250
Gruber, detection of anomalies in sound-conducting apparatus, 277
Gurlt, Military Surgery in Prussia, notice of, 226
Gusserow, diagnosis of cyst of broad ligament, 281
Guy's Hospital Reports, notice of, 484

H.

Hæmarumascope, 133
Hamilton, division of femur by subcutaneous osteotomy, 599
—————, hystero-epilepsy, 448
Handbook for Hospital Visitors, notice of, 232
Haynes, antagonism between nicotin and strychnia, 597
Head injuries, trephining for, 573
Heart, malformation of, 172
Hebra, pityriasis rubra universalis, 255
Hecker, puerperal infection in new-born children, 587
Hemianæsthesia, cerebral, cutaneous faradization in, 245
Hemiplegia, spinal, 440
Hemorrhage, post-partum, ether spray in, 278
———————, urethral, ergot in, 290
Hepatic artery, aneurism of, 565
Hermet, aphonic pectoriloquy, 249
Hernia, diaphragmatic, 249
———, strangulated, spontaneous closure of gangrenous ulcer in, 456
Hicks, displacement of uterus by distension of bladder, 181
Hildebrandt, abdominal drainage in ovariotomy, 593
Hip, plaster splint for, 121
Hip-joint, amputation at, 267, 269
Holden, cases in surgery, 175
Holmes, direct wounds of ureter, 263
Horbaczewski, nerves of labyrinth, 233
Hueter, resection of joints, 270
Humerus, dislocation of, with rupture of axillary artery, 270
Hutchinson, causes of death in ewes during and after parturition, 180
—————, Illustrations of Clinical Surgery, notice of, 213
—————, mode of spread of lupus, 570
Hyde, plaster splint for hip, 121
Hygroma, infra-patellar, 582
Hystero-epilepsy, 448

I.

Illinois State Medical Society's Transactions, notice of, 518
International Ophthalmological Congress, notice of, 188
——————— Otological Congress, notice of, 191
Intussusception, laparotomy for, 175, 291

J.

Jaborandi, influence of, on elimination of urea, 132
Jackson, Researches on Nervous System, notice of, 210
James, antipyretic treatment of pneumonia, 54
Janes, spinal hemiplegia, 440
Jaundice, treatment of catarrhal, by large injections of water, 252
Jessop, extirpation of kidney, 580
———, gastrotomy in extra-uterine pregnancy, 183
Joints, resection of, 270
Jones, Anæsthetics, notice of, 221

K.

Kansas State Medical Society's Transactions, notice of, 224
Kelsey, transposition of viscera, 596
Kidney, extirpation of, 579
———, primary tubercle of, 81
Kinloch, bulbous-headed dilating urethrotome, 125
Klein, minute anatomy of scarlet fever, 241
Klingelhoffer, diaphragmatic hernia, 249
Koeberlé, cancer of rectum treated by excision, 265
Kolb, thrombosis of cerebral sinuses, 554
Kretschy, gastric digestion, 546
Krull, treatment of catarrhal jaundice by large injections of water, 252

L.

Labour complicated with uterine fibroids, 198
Labyrinth, nerves of, 233
Landau, uretero-vaginal fistula, 279
Langenbeck, treatment of atony of bladder, 266
Langenbuch, extirpation of kidney, 579
Lannelongue, gastrostomy in obstruction of œsophagus, 261
Lansingh, spontaneous closure of gangrenous ulcer in strangulated hernia, 456
Laparotomy for intussusception, 175, 291
Larynx, extirpation of, 258
Lautenbach, functions of cerebral lobes, 371
————, On a New Function of the Liver, notice of, 507
Laveran, acute tuberculosis of synovial membrane, 581
Le Fort, new operation for prolapse of uterus, 588
Lens, bony formation in place of, 598
Leprosy in India, notice of, 214
Leuchæmia, 550
Levis, excision of rectum for cancer, 296
Liebreich, on chloral, 235
Lithotomy, supra-pubic, 116
Liver, On a New Function of, notice of, 507
Longstreth, primary tubercle of kidney, 81
Luchsinger, researches on the secretion of sweat, 234
Lung, syphilis of, 90
Lupus, mode of spread of, 570
Luxation, treatment of irreducible, by incision, 580
Lymphadenoma, 256

M.

McClelland, Civil Malpractice, notice of, 203
McCoy, imperforate anus, 287
McDowell, bony formation in place of lens, 598
M'Leod, surgical functions of omentum, 576
Major, histology of island of Reil, 184
Marsh, laparotomy for intussusception, 175
Maryland, Transactions of Medico-Chirurgical Faculty of, notice of, 522
Mason, excision of astragalus and of part of malleolus in talipes equino-varus, 598
———, neuralgia of foot, 445
Massachusetts State Board of Health Report, notice of, 514
Maxilla, osteoplastic resection of superior, 272
Medical Register for New England, notice of, 232
Medulla of bones, alteration of, in pernicious anæmia, 241
Meigs and Pepper, Diseases of Children, notice of, 231
Membrana tympani, relaxation of, 585
Menstruation by the pedicle after ovariotomy, 288
Michigan State Medical Society's Transactions, notice of, 225
Millon, the rale mouillé, 248
Mississippi State Medical Association's Transactions, notice of, 521
Missouri State Medical Association's Transactions, notice of, 524
Moore, malformation of heart, 172
Morton, worm removed from beneath conjunctiva, 113
Murray, tong pang chong in skin diseases, 237

N.

Napier, salicine in treatment of rheumatism, 243
Narcotics, mode of action of, 236
Nebraska State Medical Society's Transactions, notice of, 223
Necrosis without suppuration, 267
Nerve degeneration, 497
Nervous centres, disease of, 503
Neuralgia of foot, 445
Newman, amputation at hip-joint, 269
New York Pathological Society's Transactions, notice of, 228
Nicotin and strychnia, antagonism between, 597
Noeggerath, latent gonorrhœa in females, 198
Norris, anatomy of human retina, 402
Nothnagel, prevention of epileptic fits, 559
Noyes, retinitis apoplectica, 359

O.

Obstetrical Society of London, notice of Transactions of, 178
Œsophagus, gastrostomy for malignant disease of, 258
————————— in obstruction of, 261
Ogston, treatment of genu valgum, 275, 583
Ollier, excision of epiphysial cartilages for arresting growth of bones, 274
Omentum, surgical function of, 576
Oriental Sore, notice of, 216
Otis, Transport of Sick and Wounded by Pack Animals, notice of, 229
Ovarian hernia, strangulated, 437
Ovariotomy, drainage in, 282, 593
———— during pregnancy, 590
————, on the fever following, 285
————, Thornton's statistics of, 285
————, Wells' statistics of, 282
Oxalate of lime calculus, large, 452

P.

Packard, first insensibility from inhalation of ether, 130
Paget, some of the sequelæ of typhoid fever, 171
Paralysis, acute ascending, 559
———— agitans, trembling in, 246
————, diphtheritic, cured by continuous current, 248
————, pathology of general, 186
Patella, transverse fracture of, osseous reunion, 460
Pectoriloquy, aphonic, 249
Pemphigus malignus cured by arsenic, 408
Perineum, central rupture of, 195
Peter, diphtheritic paralysis cured by continuous current, 248
Pharynx, sarcoma of inferior constrictor of, 433

Philipson, cure of aneurism of aorta, 575
Pierd'houy, acetate of lead in granular lids, 275
Pitres, secondary degenerations of spinal cord in lesions of brain, 247
Pityriasis rubra universalis, 255
Placenta prævia, prophylactic treatment of, 297
Playfair, fibroids complicating delivery, 277
Pleuritic effusion in childhood, 561
Pneumonia, antipyretic treatment of, 54
Pozzi, trephining for head injuries, 573
Pregnancy complicated by malignant disease of cervix, 182
————, extra-uterine, gastrotomy for, 183, 197
Preyer, cause of sleep, 546
Prostate, scirrhus of, 265
Proust, opening of brain abscess, 556
Puerperal fever and erysipelas, relation between, 586
———— infection in new-born children, 587
Pulse, retardation of carotid, in aortic insufficiency, 562
Pye-Smith, xanthelasma, 488

R.

Rachel, tracheotomy, 95
Raehlmann, parenchymatous diseases of cornea, 276
Râle mouillé, 248
Ranke, treatment of irreducible luxation by incision, 580
Rectum, cancer of, treated by excision, 265, 295
————, introduction of hand into, 177
Reed, new rectal speculum, 464
Reil, histology of island of, 184
Reinsch's test for arsenic, fallacies of, 399
Renal vein, effects of ligature on, 252
Retina, anatomy of human, 402
Retinitis, albuminuric, 506
———— apoplectica, 357
Retro-uterine tumours, 495
Reviews—
  Balfour, Diseases of the Heart and Aorta, 153
  Demarquay and Saint-Vel, Diseases of the Uterus, 467
  Foster, Text-Book of Physiology, 143
  Fothergill, Practitioner's Handbook of Treatment, 163
  Labbé and Coyne, Innocent Tumours of the Breast, 137
  Maclagan, Germ Theory of Disease, 479
Rheumatism, salicine in, 243
Ringer, salicine, 548
Roberts, chloral in acute tetanus, 418
————, physical development, 492
Rogers, case of included fœtation, 466
Ross, aneurism of hepatic artery, 565
Routh, extra-uterine fibroid treated by gastrotomy, 178
Runge, injection of hot-water in uterine surgery, 588

S.

Saint Bartholomew's Hospital Reports, notice of, 171
Salicine in rheumatism, 243
Salicin, therapeutic action of, 547, 548
Sands, laparotomy for intussusception, 291
Savannah, yellow fever epidemic at, 17
Scarlatina, minute anatomy of, 241
Schäfer, Practical Histology, notice of, 211
Schiff, function of spleen, 545
Seguin, Myelitis of Anterior Horns, notice of, 231
Senator, salicin, 547
Septicæmia, puerperal, 181
Shakespeare, anatomy of retina, 402
Sidlo, parenchymatous glossitis, 560
Simmons, biliary abscess opening into bronchus, 463
Sinuses, thrombosis of cerebral, 554
Skin disease, new remedy for, 237
Sleep, cause of, 546
Smith, diphtheria, 346
Soda, salicylate of, action of, 236
Soulez, carbolated camphor, 237
Sound-conducting apparatus, detection of anomalies in, 277
South Carolina Medical Association's Transactions, notice of, 525
Southey, anasarca treated by drainage tubes, 254
Speare, paper splints, 289
Speculum, new rectal, 464
Spleen, extirpation of, 261, 578
————, function of, 545
Splints, paper, 289
Stifler, relaxation of membrana tympani, 585
Streams, pollution of, 514
Sutures, two new, 446
Sweat, researches on the secretion of, 234
Synovial membrane, acute tuberculosis of, 581
Syphilis of eye, inherited, 66
———— lung, 90
————, primary, 484

T.

Talipes equino-varus, excision of astragalus and part of malleolus in, 598
Teillais, diabetic cataract, 276
Terillon, traumatic albuminuria, 253
Tetanus, chloral in acute, 418
Thomas, gastrotomy for abdominal pregnancy, 197
————, prophylactic treatment of placenta prævia, 297
————, two new sutures, 446
Thornton, ovariotomy, 285
————, removal of uterus and ovaries, 279
Tiffany, colotomy, 413
————, syphilis of lung, 90
Todd, cases in practice, 112
Tong pang chong in skin diseases, 237
Torticollis, spasmodic, 425
Tracheotomy, 95
Trendelenberg, infra-patellar hygroma, 582
Tripier, retardation of parotid pulse in aortic insufficiency, 562
Typhoid fever, cold-water treatment of, 504
————, some of the sequels of, 171
Tyson, argument from pathology upon function of cerebellum, 110

U.

Urea, influence of jaborandi on elimination of, 132
Ureter, direct wound of, 263
Urethrotome, bulbous-headed dilating, 125
Uterine surgery, injection of hot-water in, 588
Uterus and ovaries, removal of, 279
———, Diseases of, review of Demarquay on, 467
———, displacement of, by distension of bladder, 181
———, flexures of, treatment of, 194
———, pneumatic self-replacement of, 197
———, prolapse of, new operation for, 588

V.

Vallender, prevention of epileptic fits by injections of morphia, 558
Vermont Medical Society's Transactions, notice of, 226
Vertigo, auditory, 498
Viscera, transposition of, 596
Von Oettingen, amblyopia and amaurosis after hemorrhage, 584

W.

Wadsworth, albuminuric retinitis, 506
Walsh, anatomy of brachial plexus, 387
Walsham, introduction of hand into rectum, 177
Wecker, drainage of eye by catgut, 585
———, eserine in ophthalmic therapeutics, 549
Wells, ovariotomy, 282
——————— during pregnancy, 590
———, the best anæsthetic, 549
West Riding Lunatic Asylum Reports, notice of, 184
—— Virginia Medical Society's Transactions, notice of, 521
White, the haemarumascope, 133
Wilks, diseases illustrative of arrest of brain functions, 486
———, historical notes, 487
Wiltshire, puerperal septicæmia, 181
Woodhull, yellow fever epidemic at Savannah, 17
Woodworth, Report of U. S. Marine-Hospital Service, notice of, 218
Worm removed from beneath conjunctiva, 113
Wormley, fallacies of Reinsch's test for arsenic, 399
Wythe, Microscopist, notice of, 222

Y.

Yellow Fever, Dowell on, notice of, 230
——————— epidemic at Savannah, 17

Z.

Zawerthal, diagnosis of aortic aneurisms by the laryngoscope, 249
Zehender, ectropium of both upper eyelids, 277
Ziemssen, Cyclopædia of Practice of Medicine, notice of, 206
Zoja, obturator hernia of bladder, 267

BELLEVUE HOSPITAL MEDICAL COLLEGE, CITY OF NEW YORK.

SESSIONS OF 1877-'78.

The Collegiate Year in this Institution embraces a Preliminary Autumnal Term, the regular Winter Session, and a Spring Session.

The Preliminary Autumnal Term for 1877-1878 will open on Wednesday, September 19, 1877, and continue until the opening of the Regular Session. During this term, instruction, consisting of didactic lectures on special subjects, and daily clinical lectures, will be given, as heretofore, by the entire Faculty. Students expecting to attend the Regular Session are strongly recommended to attend the Preliminary Term, but attendance during the latter is not required. *During the Preliminary Term clinical and didactic lectures will be given in precisely the same number and order as in the Regular Session.*

The Regular Session will begin on Wednesday, October 3, 1877, and end about the 1st of March, 1878.

FACULTY.

Isaac E. Taylor, M D., Emeritus Professor of Obstetrics and Diseases of Women, and President of the Faculty.

James R. Wood, M.D., LL.D., Emeritus Professor of Surgery.

Fordyce Barker, M.D., Professor of Clinical Midwifery and Diseases of Women.

Austin Flint, M.D., Professor of the Principles and Practice of Medicine and Clinical Medicine.

W. H. Van Buren, M.D., Professor of Principles and Practice of Surgery, Diseases of Genito-Urinary System, and Clinical Surgery.

Lewis A. Sayre, M.D., Professor of Orthopedic Surgery, Fractures and Dislocations, and Clinical Surgery.

Alexander B. Mott, M.D., Professor of Clinical and Operative Surgery.

William T. Lusk, M.D., Professor of Obstetrics and Diseases of Women and Children, and Clinical Midwifery.

Edmund R. Peaslee, M.D., LL.D., Professor of Gynæcology.

William M. Polk, M.D., Professor of Materia Medica and Therapeutics, and Clinical Medicine.

Austin Flint, Jr., M.D., Professor of Physiology and Physiological Anatomy, and Secretary of the Faculty.

Joseph D. Bryant, M.D., Lecturer on General, Descriptive, and Surgical Anatomy.

R. Ogden Doremus, M.D., LL.D., Professor of Chemistry and Toxicology.

Edward G. Janeway, M.D., Professor of Pathological Anatomy and Histology, Diseases of the Nervous System, and Clinical Medicine.

PROFESSORS OF SPECIAL DEPARTMENTS, ETC.

Henry D. Noyes, M.D., Professor of Ophthalmology and Otology.

John P. Gray, M D., LL D., Prof. of Psychological Medicine and Medical Jurisprudence.

Edward L. Keyes, M D., Professor of Dermatology, and Adjunct to the Chair of Principles of Surgery.

Edward G. Janeway, M D., Prof. of Practical Anatomy. (Demonstrator of Anatomy.)

Leroy Milton Yale, M.D., Lecturer Adjunct upon Orthopedic Surgery.

A. A Smith, M.D., Lecturer Adjunct upon Clinical Medicine.

A distinctive feature of the method of instruction in this College, is the union of clinical and didactic teaching. All the lectures are given within the hospital grounds. During the Regular Winter Session, in addition to four didactic lectures on every week-day, except Saturday, two or three hours are daily allotted to clinical instruction.

The Spring Session consists chiefly of Recitations from Text-books This term continues from the first of March to the first of June. During this Session, daily recitations in all the departments are held by a corps of examiners appointed by the regular Faculty. Regular Clinics are also given in the Hospital and in the College building.

Fees for the Regular Session.

Fees for Tickets to all the Lectures during the Preliminary and Regular Term, including Clinical Lectures	$140 00
Matriculation Fee	5 00
Demonstrator's Ticket (including material for dissection)	10 00
Graduation Fee	30 00

Fees for the Spring Session.

Matriculation (Ticket good for the following Winter)	$5 00
Recitations, Clinics, and Lectures	35 00
Dissection (Ticket good for the following Winter)	10 00

Students who have attended two full Winter courses of lectures may be examined at the end of their second course upon Materia Medica, Physiology, Anatomy, and Chemistry, and, if successful, they will be examined at the end of their third course upon Practice of Medicine, Surgery, and Obstetrics only.

For the Annual Circular and Catalogue, giving regulations for graduation and other information,

MEDICAL DEPARTMENT OF THE UNIVERSITY OF LOUISIANA—NEW ORLEANS.

FACULTY.

A. H. Cenas, M.D., Emeritus Professor of Obstetrics and Diseases of Women and Children.

T. G. Richardson, M.D., Professor of General and Clinical Surgery.

Samuel M. Bemiss, M.D., Professor of the Theory and Practice of Medicine and Clinical Medicine.

Stanford E. Chaillé, M.D., Professor of Physiology and Pathological Anatomy.

Joseph Jones, M.D., Professor of Chemistry and Clinical Medicine.

Samuel Logan, M.D., Professor of Anatomy and Clinical Surgery.

Ernest S. Lewis, M.D., Professor of General and Clinical Obstetrics and Diseases of Women and Children.

John B. Elliott, M.D., Professor of Materia Medica and Therapeutics and Clinical Medicine.

Albert B. Miles, Demonstrator of Anatomy.

662

The next annual course of instruction in this Department (now in the forty-fourth year of its existence) will commence on Monday, the 12th day of November, 1877, and terminate on Saturday, the 9th day of March, 1878. Preliminary Lectures on Clinical Medicine and Surgery will be delivered in the amphitheatre of the Charity Hospital, beginning on the 20th of October, without any charge to students.

The means of teaching now at the command of the Faculty are unsurpassed in the United States. Special attention is called to the opportunities presented for

CLINICAL INSTRUCTION.

The Act establishing the University of Louisiana gives the Professors of the Medical Department the use of the great Charity Hospital as a school of practical instruction.

The Charity Hospital contains nearly 700 beds, and received, during the last year, nearly *six thousand* patients. Its advantages for professional study are unsurpassed by any similar institution in this country. The Medical, Surgical, and Obstetric Wards are visited by the respective professors in charge daily, from eight to ten o'clock A. M., at which time all the students are expected to attend and familiarize themselves, *at the bedside of the patients*, with the diagnosis and treatment of all forms of injury and disease.

The regular lectures at the hospital, on Clinical Medicine by Professors Bemiss, Elliott, and Joseph Jones, Surgery by Professors Richardson and Logan, Diseases of Women and Children by Professor Lewis, and Special Pathological Anatomy by Professor Chaillé, will be delivered in the amphitheatre on Monday, Wednesday, Thursday, and Saturday, from 10 to 12 o'clock A. M.

The administrators of the hospital elect annually twelve resident students, who are maintained by the institution. All vacancies filled by competitive examinations.

TERMS.

For the Tickets of all the Professors	$140 00
For the Ticket of Practical Anatomy	10 00
Matriculation Fee	5 00
Graduation Fee	30 00

Graduates of other recognized schools may attend all the lectures upon payment of the matriculation fee; but they will not be admitted as candidates for the Diploma of the University except upon the terms required of second course students. All fees are payable in advance.

As the practical advantages here afforded for a thorough acquaintance with all the branches of medicine and surgery are *quite equal* to those possessed by the schools of New York and Philadelphia, the same fees are charged.

For further information, address T. G. RICHARDSON, M.D., *Dean.*

BINDING SECT. MAR 4 1966

R
11
A5
n.s.
v.74
cop.2

The American journal of the medical sciences

Biological
& Medical
Serials

PLEASE DO NOT REMOVE
CARDS OR SLIPS FROM THIS POCKET

UNIVERSITY OF TORONTO LIBRARY

STORAGE